

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
1 August 2002 (01.08.2002)

PCT

(10) International Publication Number  
**WO 02/059148 A2**

(51) International Patent Classification<sup>7</sup>: **C07K 14/195**

(21) International Application Number: **PCT/EP02/00546**

(22) International Filing Date: 21 January 2002 (21.01.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
A 130/01 26 January 2001 (26.01.2001) AT

(71) Applicant (for all designated States except US): **CISTEM BIOTECHNOLOGIES GMBH** [AT/AT]; Rennweg 95b, A-1030 Vienna (AT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MEINKE, Andreas** [DE/AT]; Piettegasse 26/1, A-3013 Pressbaum (AT). **NAGY, Eszter** [HU/AT]; Taborstrasse 9/15, A-1020 Vienna (AT). **VON AHSEN, Uwe** [DE/AT]; Schmalzhofgasse 22/25 A-1060 Vienna (AT). **KLADE, Christoph** [AT/AT]; Gröhrmühlgasse 1B, A-2700 Wr. Neustadt (AT). **HENICS, Tamas** [HU/AT]; Taborstrasse 9/15, A-1020 Vienna (AT). **ZAUNER, Wolfgang** [AT/AT]; Parkgasse 13/22, A-1030 Vienna (AT). **MINH, Duc, Bui** [VN/AT]; Rudolf Zeller Gasse 70/6/9, A-1230 Vienna (AT). **VYTVYTSKA, Oresta** [UA/AT]; Leystrasse 110/1/2, A-1200 Vienna (AT). **ETZ, Hildegard** [AT/AT]; Lortzinggasse 1/21, A-1140 Vienna (AT). **DRYLA, Agnieszka** [PL/AT]; Pragerstrasse 43-47/2/15, A-1210 Vienna (AT). **WEICHHART, Thomas** [AT/AT]; Hinterholz 10, A-3071 Böheimkirchen (AT). **HAFNER, Martin** [AT/AT]; Arnoldgasse 27/4/27, A-1210 Vienna (AT). **TEMPELMAIER, Brigitte** [AT/AT]; Messenhausergasse 10/20, A-1030 Vienna (AT). **FRASER, Claire, M.**

[US/US]; 11915 Glen Mill Road, Potomac, MD 20854 (US). **GILL, Steven** [US/US]; 2248 Wetherbourne Way, Frederick, MD 21702 (US).

(74) Agents: **SONN, Helmut et al.**; Riemergasse 14, A-1010 Wien (AT).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— without international search report and to be republished upon receipt of that report

(48) Date of publication of this corrected version:

16 January 2003

**(15) Information about Corrections:**

see PCT Gazette No. 03/2003 of 16 January 2003, Section II

[Continued on next page]

(54) Title: A METHOD FOR IDENTIFICATION, ISOLATION AND PRODUCTION OF ANTIGENS TO A SPECIFIC PATHOGEN

(57) Abstract: Described is a method for identification, isolation and production of hyperimmune serum-reactive antigens from a specific pathogen, a tumor, an allergen or a tissue or host prone to autoimmunity, said antigens being suited for use in a vaccine for a given type of animal or for humans, which is characterized by the following steps: - providing an antibody preparation from a plasma pool of said given type of animal or from a human plasma pool or individual sera with antibodies against said specific pathogen, tumor, allergen or tissue or host prone to auto-immunity, - providing at least one expression library of said specific pathogen, tumor, allergen or tissue or host prone to auto-immunity, - screening said at least one expression library with said antibody preparation, - identifying antigens which bind in said screening to antibodies in said antibody preparation, - screening the identified antigens with individual antibody preparations from individual sera from individuals with antibodies against said specific pathogen, tumor, allergen or tissue or host prone to auto-immunity, - identifying the hyperimmune serum-reactive antigen portion of said identified antigens and which hyperimmune serum-reactive antigens bind to a relevant portion of said individual antibody preparations from said individual sera and - optionally isolating said hyperimmune serum-reactive antigens and producing said hyperimmune serum-reactive antigens by chemical or recombinant methods.

WO 02/059148 A2



**Previous Correction:**

see PCT Gazette No. 44/2002 of 31 October 2002, Section II

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

A method for identification, isolation and production of antigens  
to a specific pathogen

The invention relates to a method for identification, isolation and production of antigens to a specific pathogen as well as new antigens suitable for use in a vaccine for a given type of animal or for humans.

Vaccines can save more lives (and resources) than any other medical intervention. Owing to world-wide vaccination programmes the incidence of many fatal diseases has been decreased drastically. Although this notion is valid for a whole panel of diseases, e.g. diphtheria, pertussis, measles and tetanus, there are no effective vaccines for numerous infectious disease including most viral infections, such as HIV, HCV, CMV and many others. There are also no effective vaccines for other diseases, infectious or non-infectious, claiming the lives of millions of patients per year including malaria or cancer. In addition, the rapid emergence of antibiotic-resistant bacteria and microorganisms calls for alternative treatments with vaccines being a logical choice. Finally, the great need for vaccines is also illustrated by the fact that infectious diseases, rather than cardiovascular disorders or cancer or injuries remain the largest cause of death and disability in the world.

Several established vaccines consist of live attenuated organisms where the risk of reversion to the virulent wild-type strain exists. In particular in immunocompromised hosts this can be a live threatening scenario. Alternatively, vaccines are administered as a combination of pathogen-derived antigens together with compounds that induce or enhance immune responses against these antigens (these compounds are commonly termed adjuvant), since these subunit vaccines on their own are generally not effective.

Whilst there is no doubt that the above vaccines are valuable medical treatments, there is the disadvantage that, due to their complexity, severe side effects can be evoked, e.g. to antigens that are contained in the vaccine that display cross-reactivity with molecules expressed by cells of vaccinated individuals. In addition, existing requirements from regulatory authorities, e.g.

- 2 -

the World Health Organization (WHO), the Food and Drug Administration (FDA), and their European counterparts, for exact specification of vaccine composition and mechanisms of induction of immunity, are difficult to meet.

Some widely used vaccines are whole cell-vaccines (attenuated bacteria or viruses (e.g. Bacille Calmette-Guerin (BCG) (tuberculosis), Measles, Mumps, Rubella, Oral Polio Vaccine (Sabin), killed bacteria or viruses (e.g. Pertussis, Inactivated polio vaccine (Salk)), subunit-vaccines (e.g. Toxoid (Diphtheria, Tetanus)), Capsular polysaccharide (H. influenzae type B), Yeast recombinant subunit (Hepatitis B surface protein).

A vaccine can contain a whole variety of different antigens. Examples of antigens are whole-killed organisms such as inactivated viruses or bacteria, fungi, protozoa or even cancer cells. Antigens may also consist of subfractions of these organisms/tissues, of proteins, or, in their most simple form, of peptides. Antigens can also be recognized by the immune system in form of glycosylated proteins or peptides and may also be or contain polysaccharides or lipids. Short peptides can be used since for example cytotoxic T-cells (CTL) recognize antigens in form of short usually 8-11 amino acids long peptides in conjunction with major histocompatibility complex (MHC). B-cells can recognize linear epitopes as short as 4-5 amino acids, as well as three dimensional structures (conformational epitopes). In order to obtain sustained, antigen-specific immune responses, adjuvants need to trigger immune cascades that involve all cells of the immune system necessary. Primarily, adjuvants are acting, but are not restricted in their mode of action, on so-called antigen presenting cells (APCs). These cells usually first encounter the antigen(s) followed by presentation of processed or unmodified antigen to immune effector cells. Intermediate cell types may also be involved. Only effector cells with the appropriate specificity are activated in a productive immune response. The adjuvant may also locally retain antigens and co-injected other factors. In addition the adjuvant may act as a chemoattractant for other immune cells or may act locally and/or systemically as a stimulating agent for the immune system.



Antigen presenting cells belong to the innate immune system, which has evolved as a first line host defence that limits infection early after exposure to microorganisms. Cells of the innate immune system recognize patterns or relatively non-specific structures expressed on their targets rather than more sophisticated, specific structures which are recognized by the adaptive immune system. Examples of cells of the innate immune system are macrophages and dendritic cells but also granulocytes (e.g. neutrophils), natural killer cells and others. By contrast, cells of the adaptive immune system recognize specific, antigenic structures, including peptides, in the case of T-cells and peptides as well as three-dimensional structures in the case of B-cells. The adaptive immune system is much more specific and sophisticated than the innate immune system and improves upon repeated exposure to a given pathogen/antigen. Phylogenetically, the innate immune system is much older and can be found already in very primitive organisms. Nevertheless, the innate immune system is critical during the initial phase of antigenic exposure since, in addition to containing pathogens, cells of the innate immune system, i.e. APCs, prime cells of the adaptive immune system and thus trigger specific immune responses leading to clearance of the intruders. In sum, cells of the innate immune system and in particular APCs play a critical role during the induction phase of immune responses by a) containing infections by means of a primitive pattern recognition system and b) priming cells of the adaptive immune system leading to specific immune responses and memory resulting in clearance of intruding pathogens or of other targets. These mechanisms may also be important to clear or contain tumor cells.

The antigens used for such vaccines have often been selected by chance or by easiness of availability. There is a demand to identify efficient antigens for a given pathogen or - preferably - an almost complete set of all antigens of a given pathogen which are practically (clinically) relevant. Such antigens may be preferred antigen candidates in a vaccine.

It is therefore an object of the present invention to comply with these demands and to provide a method with which such antigens may be provided and with which a practically complete set of an-

- 4 -

tigens of e.g. a given pathogen may be identified with a given serum as antibody source. Such a method should also be suitable for rapidly changing pathogens which evolve a fast resistance against common drugs or vaccines. The method should also be applicable to identify and isolate tumor antigens, allergens, auto-immune antigens.

Therefore, the present invention provides a method for identification, isolation and production of hyperimmune serum-reactive antigens from a specific pathogen, a tumor, an allergen or a tissue or host prone to auto-immunity, especially from a specific pathogen, said antigens being suited for use in a vaccine for a given type of animal or for humans, said method being characterized by the following steps:

- ♦providing an antibody preparation from a plasma pool of said given type of animal or from a human plasma pool or individual sera with antibodies against said specific pathogen, a tumor, an allergen or a tissue or host prone to auto-immunity,
- ♦providing at least one expression library of said specific pathogen, a tumor, an allergen or a tissue or host prone to auto-immunity,
- ♦screening said at least one expression library with said antibody preparation,
- ♦identifying antigens which bind in said screening to antibodies in said antibody preparation,
- ♦screening the identified antigens with individual antibody preparations from individual sera from individuals with antibodies against said specific pathogen, tumor, allergen or tissue or host prone to auto-immunity,
- ♦identifying the hyperimmune serum-reactive antigen portion of said identified antigens which hyperimmune serum-reactive antigens bind to a relevant portion of said individual antibody preparations from said individual sera and
- ♦optionally isolating said hyperimmune serum-reactive antigens and producing said hyperimmune serum-reactive antigens by chemical or recombinant methods.

This method is also suitable in general for identifying a practically complete set of hyperimmune serum-reactive antigens of a specific pathogen with given sera as antibody sources, if at

least three different expression libraries are screened in a pathogen/antigen identification programme using the method according to the present invention. The present invention therefore also relates to a method for identification, isolation and production of a practically complete set of hyperimmune serum-reactive antigens of a specific pathogen, said antigens being suited for use in a vaccine for a given type of animal or for humans, which is characterized by the following steps:

- ♦providing an antibody preparation from a plasma pool of said given type of animal or from a human plasma pool or individual sera with antibodies against said specific pathogen,
- ♦providing at least three different expression libraries of said specific pathogen,
- ♦screening said at least three different expression libraries with said antibody preparation,
- ♦identifying antigens which bind in at least one of said at least three screenings to antibodies in said antibody preparation,
- ♦screening the identified antigens with individual antibody preparations from individual sera from individuals with antibodies against said specific pathogen,
- ♦identifying the hyperimmune serum-reactive antigen portion of said identified antigens which hyperimmune serum-reactive antigens bind to a relevant portion of said individual antibody preparations from said individual sera,
- ♦repeating said screening and identification steps at least once,
- ♦comparing the identified hyperimmune serum-reactive antigens identified in the repeated screening and identification steps with the identified hyperimmune serum-reactive antigens identified in the initial screening and identification steps,
- ♦further repeating said screening and identification steps, if at least 5% of the hyperimmune serum-reactive antigens have been identified in the repeated screening and identification steps only, until less than 5 % of the hyperimmune serum-reactive antigens are identified in a further repeating step only to obtain a complete set of hyperimmune serum-reactive antigens of a specific pathogen and
- ♦optionally isolating said hyperimmune serum-reactive antigens and producing said hyperimmune serum-reactive antigens by

chemical or recombinant methods.

The method according to the present invention mainly consists of three essential parts, namely 1. identifying hyperimmune serum sources containing specific antibodies against a given pathogen, 2. screening of suitable expression libraries with a suitable antibody preparation wherein candidate antigens (or antigenic fragments of such antigens) are selected, and - 3. in a second screening round, wherein the hyperimmune serum-reactive antigens are identified by their ability to bind to a relevant portion of individual antibody preparations from individual sera in order to show that these antigens are practically relevant and not only hyperimmune serum-reactive, but also widely immunogenic (i.e. that a lot of individual sera react with a given antigen). With the present method it is possible to provide a set of antigens of a given pathogen which is practically complete with respect to the chosen pathogen and the chosen serum. Therefore, a bias with respect to "wrong" antigen candidates or an incomplete set of antigens of a given pathogen is excluded by the present method.

Completeness of the antigen set of a given pathogen within the meaning of the present invention is, of course, dependent on the completeness of the expression libraries used in the present method and on the quality and size of serum collections (number of individual plasmas/sera) tested, both with respect to representability of the library and usefulness of the expression system. Therefore, preferred embodiments of the present method are characterized in that at least one of said expression libraries is selected from a ribosomal display library, a bacterial surface library and a proteome.

A serum collection used in the present invention should be tested against a panel of known antigenic compounds of a given pathogen, such as polysaccharide, lipid and proteinaceous components of the cell wall, cell membranes and cytoplasm, as well as secreted products. Preferably, three distinct serum collections are used: 1. With very stable antibody repertoire: normal adults, clinically healthy people, who overcome previous encounters or currently carriers of e.g. a given pathogen without acute disease and symptoms, 2. With antibodies induced acutely by the presence

of the pathogenic organism: patients with acute disease with different manifestations (e.g. *S. aureus* sepsis or wound infection, etc.), 3. With no specific antibodies at all (as negative controls): 5-8 months old babies who lost the maternally transmitted immunoglobulins 5-6 months after birth. Sera have to react with multiple pathogen-specific antigens in order to consider hyperimmune for a given pathogen (bacteria, fungus, worm or otherwise), and for that relevant in the screening method according to the present invention.

In the antigen identification programme for identifying a complete set of antigens according to the present invention, it is preferred that said at least three different expression libraries are at least a ribosomal display library, a bacterial surface library and a proteome. It has been observed that although all expression libraries may be complete, using only one or two expression libraries in an antigen identification programme will not lead to a complete set of antigens due to preferential expression properties of each of the different expression libraries. While it is therefore possible to obtain hyperimmune serum-reactive antigens by using only one or two different expression libraries, this might in many cases not finally result in the identification of a complete set of hyperimmune serum-reactive antigens. Of course, the term "complete" according to the present invention does not indicate a theoretical maximum but is indeed a practical completeness, i.e. that at least 95% of the practically relevant antigens or antigenic determinants have been identified of a given pathogen. The practical relevance is thereby defined by the occurrence of antibodies against given antigens in the patient population.

According to the present invention also serum pools or plasma fractions or other pooled antibody containing body fluids are "plasma pools".

An expression library as used in the present invention should at least allow expression of all potential antigens, e.g. all surface proteins of a given pathogen. With the expression libraries according to the present invention, at least one set of potential antigens of a given pathogen is provided, this set being prefera-

bly the complete theoretical complement of (poly-)peptides encoded by the pathogen's genome (i.e. genomic libraries as described in Example 2) and expressed either in a recombinant host (see Example 3) or in vitro (see Example 4). This set of potential antigens can also be a protein preparation, in the case of extracellular pathogens preferably a protein preparation containing surface proteins of said pathogen obtained from said pathogen grown under defined physiological conditions (see Example 5). While the genomic approach has the potential to contain the complete set of antigens, the latter one has the advantage to contain the proteins in their naturally state i.e. including for instance post-translational modifications or processed forms of these proteins, not obvious from the DNA sequence. These or any other sets of potential antigens from a pathogen, a tumor, an allergen or a tissue or host prone to auto-immunity are hereafter referred to as "expression library". Expression libraries of very different kinds may be applied in the course of the present invention. Suitable examples are given in e.g. Ausubel et al., 1994. Especially preferred are expression libraries representing a display of the genetic set of a pathogen in recombinant form such as in vitro translation techniques, e.g. ribosomal display, or prokaryotic expression systems, e.g. bacterial surface expression libraries or which resemble specific physiological expression states of a given pathogen in a given physiological state, such as a proteome.

Ribosome display is an established method in recombinant DNA technology, which is applicable for each specific pathogen for the sake of the present invention (Schaffitzel et al, 1999). Bacterial surface display libraries will be represented by a recombinant library of a bacterial host displaying a (total) set of expressed peptide sequences of a given pathogen on e.g. a selected outer membrane protein at the bacterial host membrane (Georgiou et al., 1997). Apart from displaying peptide or protein sequences in an outer membrane protein, other bacterial display techniques, such as bacteriophage display technologies and expression via exported proteins are also preferred as bacterial surface expression library ( Forrer et al., 1999; Rodi and Makowski, 1993; Georgiou et al., 1997).

The antigen preparation for the first round of screening in the method according to the present invention may be derived from any source containing antibodies to a given pathogen. Preferably, if a plasma pool is used as a source for the antibody preparation, a human plasma pool is selected which comprises donors which had experienced or are experiencing an infection with the given pathogen. Although such a selection of plasma or plasma pools is in principle standard technology in for example the production of hyperimmunoglobulin preparations, it was surprising that such technologies have these effects as especially shown for the preferred embodiments of the present invention.

Preferably the expression libraries are genomic expression libraries of a given pathogen, or alternatively m-RNA, libraries. It is preferred that these genomic or m-RNA libraries are complete genomic or m-RNA expression libraries which means that they contain at least once all possible proteins, peptides or peptide fragments of the given pathogen are expressable. Preferably the genomic expression libraries exhibit a redundancy of at least 2x, more preferred at least 5x, especially at least 10x.

Preferably, the method according to the present invention comprises screening at least a ribosomal display library, a bacterial surface display library and a proteome with the antibody preparation and identifying antigens which bind in at least two, preferably which bind to all, of said screenings to antibodies in said antibody preparation. Such antigens may then be regarded extremely suited as hyperimmunogenic antigens regardless of their way of expression. Preferably the at least two screenings should at least contain the proteome, since the proteome always represents the antigens as naturally expressed proteins including post-translational modifications, processing, etc. which are not obvious from the DNA sequence.

The method according to the present invention may be applied to any given pathogen. Therefore, preferred pathogens are selected from the group of bacterial, viral, fungal and protozoan pathogens. The method according to the present invention is also applicable to cancer, i.e. for the identification of tumor-associated antigens, and for the identification of allergens or

- 10 -

antigens involved in auto-immune diseases. Of course, especially the recombinant methods are rather simple for pathogens having a small genome or a comparatively small number of expressed proteins (such as bacterial or viral pathogens) and are more complicated for complex (eukaryotic) organisms having large genomes. However, also such large genomic libraries of higher organism pathogens may well be analyzed with the method according to the present invention, at least in a faster and more reliable way than with known methods for identifying suitable antigens.

Preferred pathogens to be analyzed or which antigens are to be extracted, respectively, include human immunodeficiency virus (HIV), hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), Rous sarcoma virus (RSV), Epstein-Barr virus (EBV), influenza virus (IV), rotavirus (RV), *Staphylococcus aureus* (*S. aureus*), *Staphylococcus epidermidis* (*S. epidermidis*), *Chlamydia pneumoniae* (*C. pneumoniae*), *Chlamydia trachomatis* (*C. trachomatis*), *Mycobacterium tuberculosis* (*M. tuberculosis*), *Mycobacterium leprae* (*M. leprae*), *Streptococcus pneumoniae* (*S. pneumoniae*), *Streptococcus pyogenes* (*S. pyogenes*), *Streptococcus agalactiae* (*S. agalactiae*), *Enterococcus faecalis* (*E. faecalis*), *Bacillus anthracis* (*B. anthracis*), *Vibrio cholerae* (*V. cholerae*), *Borrelia burgdorferi* (*B. burgdorferi*), *Plasmodium* sp., fungal diseases such as *Pneumocystis carinii*, *Aspergillus* sp., *Cryptococcus* sp., *Candida albicans* or parasitic infections such as ascariasis (*Ascaris lumbricoides*) and taeniasis (*Taenia saginata*). The method according to the present invention is most applicable for bacteria, worms or candida.

As a model organism for the present application *Staphylococcus aureus* has been chosen to demonstrate the applicability and efficacy of the method according to the present invention. Especially with respect to the examples it is clear that the invention is easily transferable to all potential pathogens, especially the ones listed above.

It was surprising that the method according to the present invention allows an efficient and fast biological screening of a given pathogen, especially in view of the fact that only a small fraction of a patient's antibody repertoire is directed to a given



- 11 -

pathogen, even in a state where this pathogen is effectively defeated. It has been discovered within the course of the present invention, especially during performance of the S.aureus example that only 1-2% of the antibody repertoire of a patient having high titers against S.aureus are indeed antibodies directed against S.aureus. Moreover, over 70% of this specific 1% portion is directed against non-protein antigens, such as teichoic acid, so that only a total of 0.1% or less of the antibodies are directed to proteinaceous antigens.

One of the advantages of using recombinant expression libraries, especially ribosome display libraries and bacterial surface display libraries, is that the identified hyperimmune serum-reactive antigens may be instantly produced by expression of the coding sequences of the screened and selected clones expressing the hyperimmune serum-reactive antigens without further recombinant DNA technology or cloning steps necessary.

The hyperimmune serum-reactive antigens obtainable by the method according to the present invention may therefore be immediately finished to a pharmaceutical preparation, preferably by addition of a pharmaceutically acceptable carrier and/or excipient, immediately after its production (in the course of the second selection step), e.g. by expression from the expression library platform.

Preferably, the pharmaceutical preparation containing the hyperimmune serum-reactive antigen is a vaccine for preventing or treating an infection with the specific pathogen for which the antigens have been selected.

The pharmaceutical preparation may contain any suitable auxiliary substances, such as buffer substances, stabilisers or further active ingredients, especially ingredients known in connection of vaccine production.

A preferable carrier/or excipient for the hyperimmune serum-reactive antigens according to the present invention is a immunostimulatory compound for further stimulating the immune response to the given hyperimmune serum-reactive antigen. Pref-

erably the immunostimulatory compound in the pharmaceutical preparation according to the present invention is selected from the group of polycationic substances, especially polycationic peptides, immunostimulatory deoxynucleotides, alumn, Freund's complete adjuvans, Freund's incomplete adjuvans, neuroactive compounds, especially human growth hormone, or combinations thereof.

The polycationic compound(s) to be used according to the present invention may be any polycationic compound which shows the characteristic effects according to the WO 97/30721. Preferred polycationic compounds are selected from basic polypeptides, organic polycations, basic polyamino acids or mixtures thereof. These polyamino acids should have a chain length of at least 4 amino acid residues (see: Tuftsin as described in Goldman et al. (1983)). Especially preferred are substances like polylysine, polyarginine and polypeptides containing more than 20%, especially more than 50% of basic amino acids in a range of more than 8, especially more than 20, amino acid residues or mixtures thereof. Other preferred polycations and their pharmaceutical compositions are described in WO 97/30721 (e.g. polyethyleneimine) and WO 99/38528. Preferably these polypeptides contain between 20 and 500 amino acid residues, especially between 30 and 200 residues.

These polycationic compounds may be produced chemically or recombinantly or may be derived from natural sources.

Cationic (poly)peptides may also be anti- microbial with properties as reviewed in Ganz et al, 1999; Hancock, 1999. These (poly)peptides may be of prokaryotic or animal or plant origin or may be produced chemically or recombinantly (Andreu et al., 1998; Ganz et al., 1999; Simmaco et al., 1998). Peptides may also belong to the class of defensins (Ganz, 1999; Ganz et al., 1999). Sequences of such peptides can be, for example, be found in the Antimicrobial Sequences Database under the following internet address:

<http://www.bbcm.univ.trieste.it/~tossi/pag2.html>

Such host defence peptides or defensives are also a preferred form of the polycationic polymer according to the present inven-

tion. Generally, a compound allowing as an end product activation (or down-regulation) of the adaptive immune system, preferably mediated by APCs (including dendritic cells) is used as polycationic polymer.

Especially preferred for use as polycationic substance in the present invention are cathelicidin derived antimicrobial peptides or derivatives thereof (International patent application PCT/EP01/09529, incorporated herein by reference), especially antimicrobial peptides derived from mammal cathelicidin, preferably from human, bovine or mouse.

Polycationic compounds derived from natural sources include HIV-REV or HIV-TAT (derived cationic peptides, antennapedia peptides, chitosan or other derivatives of chitin) or other peptides derived from these peptides or proteins by biochemical or recombinant production. Other preferred polycationic compounds are cathelin or related or derived substances from cathelin. For example, mouse cathelin is a peptide which has the amino acid sequence  $\text{NH}_2\text{-RLAGLLRKGGEKIGEKLLKIGOKIKNFFQKLVPQPE-COOH}$ . Related or derived cathelin substances contain the whole or parts of the cathelin sequence with at least 15-20 amino acid residues. Derivations may include the substitution or modification of the natural amino acids by amino acids which are not among the 20 standard amino acids. Moreover, further cationic residues may be introduced into such cathelin molecules. These cathelin molecules are preferred to be combined with the antigen. These cathelin molecules surprisingly have turned out to be also effective as an adjuvant for a antigen without the addition of further adjuvants. It is therefore possible to use such cathelin molecules as efficient adjuvants in vaccine formulations with or without further immunactivating substances.

Another preferred polycationic substance to be used according to the present invention is a synthetic peptide containing at least 2 KLK-motifs separated by a linker of 3 to 7 hydrophobic amino acids (International patent application PCT/EP01/12041, incorporated herein by reference).

Immunostimulatory deoxynucleotides are e.g. neutral or artificial

CpG containing DNA, short stretches of DNA derived from non-vertebrates or in form of short oligonucleotides (ODNs) containing non-methylated cytosine-guanine di-nucleotides (CpG) in a certain base context (e.g. Krieg et al., 1995) but also inosine containing ODNs (I-ODNs) as described in WO 01/93905.

Neuroactive compounds, e.g. combined with polycationic substances are described in WO 01/24822.

According to a preferred embodiment the individual antibody preparation for the second round of screening are derived from patients who have suffered from an acute infection with the given pathogen, especially from patients who show an antibody titer to the given pathogen above a certain minimum level, for example an antibody titer being higher than 80 percentile, preferably higher than 90 percentile, especially higher than 95 percentile of the human (patient or carrier) sera tested. Using such high titer individual antibody preparations in the second screening round allows a very selective identification of the hyperimmune serum-reactive antigens to the given pathogen.

It is important that the second screening with the individual antibody preparations (which may also be the selected serum) allows a selective identification of the hyperimmune serum-reactive antigens from all the promising candidates from the first round. Therefore, preferably at least 10 individual antibody preparations (i.e. antibody preparations (e.g. sera) from at least 10 different individuals having suffered from an infection to the chosen pathogen) should be used in identifying these antigens in the second screening round. Of course, it is possible to use also less than 10 individual preparations, however, selectivity of the step may not be optimal with a low number of individual antibody preparations. On the other hand, if a given hyperimmune serum-reactive antigen (or an antigenic fragment thereof) is recognized in at least 10 individual antibody preparations, preferably at least 30, especially at least 50 individual antibody preparations, identification of hyperimmune serum-reactive antigen is also selective enough for a proper identification. Hyperimmune serum-reactivity may of course be tested with as many individual preparations as possible (e.g. with more than 100 or even with

more than 1000).

Therefore, the relevant portion of the hyperimmune serum-reactive antibody preparation according to the method of the present invention should preferably be at least 10, more preferred at least 30, especially at least 50 individual antibody preparations. Alternatively (or in combination) hyperimmune serum-reactive antigen may preferably be also identified with at least 20%, preferably at least 30%, especially at least 40% of all individual antibody preparations used in the second screening round.

According to a preferred embodiment of the present invention, the sera from which the individual antibody preparations for the second round of screening are prepared (or which are used as antibody preparations), are selected by their titer against the specific pathogen (e.g. against a preparation of this pathogen, such as a lysate, cell wall components and recombinant proteins). Preferably, some are selected with a total IgA titer above 4000 U, especially above 6000 U, and/or an IgG titer above 10 000 U, especially above 12 000 U (U = units, calculated from the OD<sub>405nm</sub> reading at a given dilution) when whole organism (total lysate or whole cells) is used as antigen in ELISA. Individual proteins with Ig titers of above 800-1000 U are specifically preferred for selecting the hyperimmune serum-reactive antigens according to the present invention only for total titer. The statement for individual proteins can be derived from Fig. 9.

According to the demonstration example which is also a preferred embodiment of the present invention the given pathogen is a Staphylococcus pathogen, especially Staphylococcus aureus and Staphylococcus epidermidis. Staphylococci are opportunistic pathogens which can cause illnesses which range from minor infections to life threatening diseases. Of the large number of Staphylococci at least 3 are commonly associated with human disease: S. aureus, S. epidermidis and rarely S. saprophyticus (Crossley and Archer, 1997). S. aureus has been used within the course of the present invention as an illustrative example of the way the present invention functions. Besides that, it is also an important organism with respect to its severe pathogenic impacts on humans. Staphylococcal infections are imposing an increasing

threat in hospitals worldwide. The appearance and disease causing capacity of Staphylococci are related to the wide-spread use of antibiotics which induced and continue to induce multi-drug resistance. For that reason medical treatment against Staphylococcal infections cannot rely only on antibiotics anymore.

Therefore, a tactic change in the treatment of these diseases is desperately needed which aims to prevent infections. Inducing high affinity antibodies of the opsonic and neutralizing type by vaccination helps the innate immune system to eliminate bacteria and toxins. This makes the method according to the present invention an optimal tool for the identification of staphylococcal antigenic proteins.

Every human being is colonized with *S. epidermidis*. The normal habitats of *S. epidermidis* are the skin and the mucous membrane. The major habitats of the most pathogenic species, *S. aureus*, are the anterior nares and perineum. Some individuals become permanent *S. aureus* carriers, often with the same strain. The carrier stage is clinically relevant because carriers undergoing surgery have more infections than noncarriers. Generally, the established flora of the nose prevents acquisition of new strains. However, colonization with other strains may occur when antibiotic treatment is given that leads to elimination of the susceptible carrier strain. Because this situation occurs in the hospitals, patients may become colonized with resistant nosocomial Staphylococci. These bacteria have an innate adaptability which is complemented by the widespread and sometimes inappropriate use of antimicrobial agents. Therefore hospitals provide a fertile environment for drug resistance to develop (close contact among sick patients, extensive use of antimicrobials, nosocomial infections). Both *S. aureus* and *S. epidermidis* have become resistant to many commonly used antibiotics, most importantly to methicillin (MRSA) and vancomycin (VISA). Drug resistance is an increasingly important public health concern, and soon many infections caused by staphylococci may be untreatable by antibiotics. In addition to its adverse effect on public health, antimicrobial resistance contributes to higher health care costs, since treating resistant infections often requires the use of more toxic and more expensive drugs, and can result in longer hospital stays for infected patients.

Moreover, even with the help of effective antibiotics, the most serious staphylococcal infections have 30-50 % mortality.

Staphylococci become potentially pathogenic as soon as the natural balance between microorganisms and the immune system gets disturbed, when natural barriers (skin, mucous membrane) are breached. The coagulase-positive *S. aureus* is the most pathogenic staphylococcal species, feared by surgeons for a long time. Most frequently it causes surgical wound infections, and induces the formation of abscesses. This local infection might become systemic, causing bacteraemia and sepsis. Especially after viral infections and in elderly, it can cause severe pneumonia. *S. aureus* is also a frequent cause of infections related to medical devices, such as intravascular and percutan catheters (endocarditis, sepsis, peritonitis), prosthetic devices (septic arthritis, osteomyelitis). *S. epidermidis* causes diseases mostly related to the presence of foreign body and the use of devices, such as catheter related infections, cerebrospinal fluid shunt infections, peritonitis in dialysed patients (mainly CAPD), endocarditis in individuals with prosthetic valves. This is exemplified in immunocompromised individuals such as oncology patients and premature neonates in whom coagulase-negative staphylococcal infections frequently occur in association with the use of intravascular device. The increase in incidence is related to the increased use of these devices and increasing number of immunocompromised patients.

Much less is known about *S. saprophyticus*, another coagulase-negative staphylococci, which causes acute urinary tract infection in previously healthy people. With a few exceptions these are women aged 16-25 years.

The pathogenesis of staphylococci is multifactorial. In order to initiate infection the pathogen has to gain access to the cells and tissues of the host, that is adhere. *S. aureus* expresses surface proteins that promote attachment to the host proteins such as laminin, fibronectin, elastin, vitronectin, fibrinogen and many other molecules that form part of the extracellular matrix (extracellular matrix binding proteins, ECMBP). *S. epider-*

midis is equipped with cell surface molecules which promote adherence to foreign material and through that mechanism establish infection in the host. The other powerful weapons staphylococci use are the secreted products, such as enterotoxins, exotoxins, and tissue damaging enzymes. The toxins kill or misguide immune cells which are important in the host defence. The several different types of toxins are responsible for most of the symptoms during infections.

Host defence against *S. aureus* relies mainly on innate immunological mechanisms. The skin and mucous membranes are formidable barriers against invasion by Staphylococci. However, once the skin or the mucous membranes are breached (wounds, percutan catheters, etc), the first line of nonadaptive cellular defence begins its co-ordinate action through complement and phagocytes, especially the polymorphonuclear leukocytes (PMNs). These cells can be regarded as the cornerstones in eliminating invading bacteria. As Staphylococci are primarily extracellular pathogens, the major anti-staphylococcal adaptive response comes from the humoral arm of the immune system, and is mediated through three major mechanisms: promotion of opsonization, toxin neutralisation, and inhibition of adherence. It is believed that opsonization is especially important, because of its requirement for an effective phagocytosis. For efficient opsonization the microbial surface has to be coated with antibodies and complement factors for recognition by PMNs through receptors to the Fc fragment of the IgG molecule or to activated C3b. After opsonization, staphylococci are phagocytosed and killed. Moreover, *S. aureus* can attach to endothelial cells, and be internalised by a phagocytosis-like process. Antibodies bound to specific antigens on the cell surface of bacteria serve as ligands for the attachment to PMNs and promote phagocytosis. The very same antibodies bound to the adhesins and other cell surface proteins are expected to neutralize adhesion and prevent colonization.

There is little clinical evidence that cell mediated immunity has a significant contribution in the defence against Staphylococci, yet one has to admit that the question is not adequately addressed. It is known, however, that *Staphylococcus aureus* utilizes an extensive array of molecular countermeasures to



- 19 -

manipulate the defensive microenvironment of the infected host by secreting polypeptides referred to as superantigens, which target the multireceptor communication between T-cells and antigen-presenting cells that is fundamental to initiating pathogen-specific immune clearance. Superantigens play a critical role in toxic shock syndrome and food poisoning, yet their function in routine infections is not well understood. Moreover, one cannot expect a long lasting antibody (memory) response without the involvement of T-cells. It is also known that the majority of the anti-staphylococcal antibodies are against T-cell independent antigens (capsular polysaccharides, lipoteichoic acid, peptidoglycan) without a memory function. The T-cell dependent proteinaceous antigens can elicit long-term protective antibody responses. These staphylococcal proteins and peptides have not yet been determined.

For all these above mentioned reasons, a tactic change on the war field against staphylococcal infections is badly needed. One way of combating infections is preventing them by active immunisation. Vaccine development against *S. aureus* has been initiated by several research groups and national institutions worldwide, but there is no effective vaccine approved so far. It has been shown that an antibody deficiency state contributes to staphylococcal persistence, suggesting that anti-staphylococcal antibodies are important in host defence. Antibodies - added as passive immunisation or induced by active vaccination - directed towards surface components could both prevent bacterial adherence, neutralize toxins and promote phagocytosis. A vaccine based on fibronectin binding protein induces protective immunity against mastitis in cattle and suggest that this approach is likely to work in humans (refs). Taking all this together it is suggestive that an effective vaccine should be composed of proteins or polypeptides, which are expressed by all strains and are able to induce high affinity, abundant antibodies against cell surface components of *S. aureus*. The antibodies should be IgG1 and/or IgG3 for opsonization, and any IgG subtype and IgA for neutralisation of adherence and toxin action. A chemically defined vaccine must be definitely superior compared to a whole cell vaccine (attenuated or killed), since components of *S. aureus* which paralyze TH cells (superantigens) or inhibit opsonization (protein A)

can be eliminated, and the individual proteins inducing protective antibodies can be selected. Identification of the relevant antigens help to generate effective passive immunisation (humanised monoclonal antibody therapy), which can replace human immunoglobulin administration with all its dangerous side-effects. Neonatal staphylococcal infections, severe septicemia and other life-threatening acute conditions are the primary target of passive immunisation. An effective vaccine offers great potential for patients facing elective surgery in general, and those receiving endovascular devices, in particular. Moreover, patients suffering from chronic diseases which decrease immune responses or undergoing continuous ambulatory peritoneal dialysis are likely to benefit from such a vaccine.

For the illustrative example concerning *Staphylococcus aureus* three different approaches have been employed in parallel. All three of these methods are based on the interaction of *Staphylococcus* proteins or peptides with the antibodies present in human sera with the method according to the present invention. This interaction relies on the recognition of epitopes within the proteins which can be short peptides (linear epitopes) or polypeptide domains (structural epitopes). The antigenic proteins are identified by the different methods using pools of pre-selected sera and - in the second screening round - by individual selected sera.

Following the high throughput screening, the selected antigenic proteins are expressed as recombinant proteins or in vitro translated products (in case it can not be expressed in prokaryotic expression systems), and tested in a series of ELISA and Western blotting assays for the assessment of immunogenicity with a large human serum collection (> 100 uninfected, > 50 patients sera). The preferred antigens are located on the cell surface or secreted, that is accessible extracellularly. Antibodies against the cell wall proteins (such as the Extracellular matrix binding proteins) are expected to serve double purposes: to inhibit adhesion and promote phagocytosis. The antibodies against the secreted proteins are beneficial in toxin neutralisation. It is also known that bacteria communicate with each other through secreted proteins. Neutralizing antibodies against these proteins

will interrupt growth promoting cross-talk between or within staphylococcal species. Bioinformatics (signal sequences, cell wall localisation signals, transmembrane domains) proved to be very useful in assessing cell surface localisation or secretion. The experimental approach includes the isolation of antibodies with the corresponding epitopes and proteins from human serum, and use them as reagents in the following assays: cell surface staining of staphylococci grown under different conditions (FACS, microscopy), determination of neutralizing capacity (toxin, adherence), and promotion of opsonization and phagocytosis (in vitro phagocytosis assay).

The recognition of linear epitopes by antibodies can be based on sequences as short as 4-5 aa. Of course it does not necessarily mean that these short peptides are capable of inducing the given antibody. *in vivo*. For that reason the defined epitopes, polypeptides and proteins may further be tested in animals (mainly in mice) for their capacity to induce antibodies against the selected proteins *in vivo*. The antigens with the proven capability to induce antibodies will be tested in animal models for the ability to prevent infections.

The antibodies produced against Staphylococci by the human immune system and present in human sera are indicative of the *in vivo* expression of the antigenic proteins and their immunogenicity.

Accordingly, novel hyperimmune serum-reactive antigens from Staphylococcus aureus or Staphylococcus epidermidis have been made available by the method according to the present invention. According to another aspect of the present invention the invention relates to a hyperimmune serum-reactive antigen selected from the group consisting of the sequences listed in any one of Tables 2a, 2b, 2c, 2d, 3, 4 and 5, especially selected from the group consisting of Seq.ID No. 56, 57, 59, 60, 67, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 85, 87, 88, 89, 90, 92, 95, 96, 97, 99, 100, 101, 102, 103, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 126, 128, 132, 134, 138, 140, 142, 151, 152, 154, 155 and hyperimmune fragments thereof. Accordingly, the present invention also relates to a hyperimmune serum-reactive antigen obtainable by the method according to the present invention

and being selected from the group consisting of the sequences listed in any one of Tables 2a, 2b, 2c, 2d, 3, 4 and 5, especially selected from the group consisting of Seq.ID No. 56, 57, 59, 60, 67, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 85, 87, 88, 89, 90, 92, 95, 96, 97, 99, 100, 101, 102, 103, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 126, 128, 132, 134, 138, 140, 142, 151, 152, 154, 155 and hyperimmune fragments thereof.

Antigens from *Staphylococcus aureus* and *Staphylococcus epidermidis* have been extracted by the method according to the present invention which may be used in the manufacture of a pharmaceutical preparation, especially for the manufacture of a vaccine against *Staphylococcus aureus* and *Staphylococcus epidermidis* infections. Examples of such hyperimmune serum-reactive antigens of *Staphylococcus aureus* and *Staphylococcus epidermidis* to be used in a pharmaceutical preparation are selected from the group consisting of the sequences listed in any one of Tables 2a, 2b, 2c, 2d, 3, 4 and 5, especially selected from the group consisting of Seq.ID No. 55, 56, 57, 58, 59, 60, 62, 66, 67, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, 89, 90, 92, 94, 95, 96, 97, 99, 100, 101, 102, 103, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 126, 128, 130, 132, 134, 138, 140, 142, 151, 152, 154, 155, 158 and hyperimmune fragments thereof for the manufacture of a pharmaceutical preparation, especially for the manufacture of a vaccine against *Staphylococcus aureus* and *Staphylococcus epidermidis* infections.

A hyperimmune fragment is defined as a fragment of the identified antigen which is for itself antigenic or may be made antigenic when provided as a hapten. Therefore, also antigen or antigenic fragments showing one or (for longer fragments) only a few amino acid exchanges are enabled with the present invention, provided that the antigenic capacities of such fragments with amino acid exchanges are not severely deteriorated on the exchange(s). i.e. suited for eliciting an appropriate immune response in a individual vaccinated with this antigen and identified by individual antibody preparations from individual sera.

Preferred examples of such hyperimmune fragments of a hyperimmune serum-reactive antigen are selected from the group consisting of

peptides comprising the amino acid sequences of column "predicted immunogenic aa", "Location of identified immunogenic region" and "Serum reactivity with relevant region" of Tables 2a, 2b, 2c and 2d and the amino acid sequences of column "Putative antigenic surface areas" of Table 4 and 5, especially peptides comprising amino acid No. aa 12-29, 34-40, 63-71, 101-110, 114-122, 130-138, 140-195, 197-209, 215-229, 239-253, 255-274 and 39-94 of Seq.ID No. 55,

aa 5-39, 111-117, 125-132, 134-141, 167-191, 196-202, 214-232, 236-241, 244-249, 292-297, 319-328, 336-341, 365-380, 385-391, 407-416, 420-429, 435-441, 452-461, 477-488, 491-498, 518-532, 545-556, 569-576, 581-587, 595-602, 604-609, 617-640, 643-651, 702-715, 723-731, 786-793, 805-811, 826-839, 874-889, 37-49; 63-77 and 274-334, of Seq.ID No.56,

aa 28-55, 82-100, 105-111, 125-131, 137-143, 1-49, of Seq.ID No. 57,

aa 33-43, 45-51, 57-63, 65-72, 80-96, 99-110, 123-129, 161-171, 173-179, 185-191, 193-200, 208-224, 227-246, 252-258, 294-308, 321-329, 344-352, 691-707, 358-411 and 588-606, of Seq.ID No. 58,

aa 16-38, 71-77, 87-94, 105-112, 124-144, 158-164, 169-177, 180-186, 194-204, 221-228, 236-245, 250-267, 336-343, 363-378, 385-394, 406-412, 423-440, 443-449, 401-494, of Seq.ID No. 59,

aa 18-23, 42-55, 69-77, 85-98, 129-136, 182-188, 214-220, 229-235, 242-248, 251-258, 281-292, 309-316, 333-343, 348-354, 361-367, 393-407, 441-447, 481-488, 493-505, 510-515, 517-527, 530-535, 540-549, 564-583, 593-599, 608-621, 636-645, 656-670, 674-687, 697-708, 726-734, 755-760, 765-772, 785-792, 798-815, 819-824, 826-838, 846-852, 889-904, 907-913, 932-939, 956-964, 982-1000, 1008-1015, 1017-1024, 1028-1034, 1059-1065, 1078-1084, 1122-1129, 1134-1143, 1180-1186, 1188-1194, 1205-1215, 1224-1230, 1276-1283, 1333-1339, 1377-1382, 1415-1421, 1448-1459, 1467-1472, 1537-1545, 1556-1566, 1647-1654, 1666-1675, 1683-1689, 1722-1737, 1740-1754, 1756-1762, 1764-1773, 1775-1783, 1800-1809, 1811-1819, 1839-1851, 1859-1866, 1876-1882, 1930-1939, 1947-1954, 1978-1985, 1999-2007, 2015-2029, 2080-2086, 2094-2100, 2112-2118, 2196-2205, 2232-2243, 198-258, 646-727 and 2104-2206, of Seq.ID No. 60,

aa 10-29, 46-56, 63-74, 83-105, 107-114, 138-145, 170-184, 186-193, 216-221, 242-248, 277-289, 303-311, 346-360, 379-389, 422-428, 446-453, 459-469, 479-489, 496-501, 83-156, of Seq.ID No. 62,

aa 14-22, 32-40, 52-58, 61-77, 81-93, 111-117, 124-138, 151-190, 193-214, 224-244, 253-277, 287-295, 307-324, 326-332, 348-355, 357-362, 384-394, 397-434, 437-460, 489-496, 503-510, 516-522, 528-539, 541-547, 552-558, 563-573, 589-595, 602-624, 626-632, 651-667, 673-689, 694-706, 712-739, 756-790, 403-462, of Seq.ID No. 66,

aa 49-56, 62-68, 83-89, 92-98, 109-115, 124-131, 142-159, 161-167, 169-175, 177-188, 196-224, 230-243, 246-252, 34-46, of Seq.ID No. 67,

aa 11-20, 26-47, 69-75, 84-92, 102-109, 119-136, 139-147, 160-170, 178-185, 190-196, 208-215, 225-233, 245-250, 265-272, 277-284, 300-306, 346-357, 373-379, 384-390, 429-435, 471-481, 502-507, 536-561, 663-688, 791-816, 905-910, 919-933, 977-985, 1001-1010, 1052-1057, 1070-1077, 1082-1087, 1094-1112, 493-587, 633-715 and 704-760, of Seq.ID No.70,

aa.6-20, 53-63, 83-90, 135-146, 195-208, 244-259, 263-314, 319-327, 337-349, 353-362, 365-374, 380-390, 397-405, 407-415, 208-287 and 286-314, of Seq.ID No. 71,

aa 10-26, 31-43, 46-58, 61-66, 69-79, 85-92, 100-115, 120-126, 128-135, 149-155, 167-173, 178-187, 189-196, 202-222, 225-231, 233-240, 245-251, 257-263, 271-292, 314-322, 325-334, 339-345, 59-74, of Seq.ID No. 72,

aa 4-9, 15-26, 65-76, 108-115, 119-128, 144-153, 38-52 and 66-114, of Seq.ID No. 73,

aa 5-22, 42-50, 74-81, 139-145, 167-178, 220-230, 246-253, 255-264, 137-237 and 250-267, of Seq.ID No. 74,

aa 10-26, 31-44, 60-66, 99-104, 146-153, 163-169, 197-205, 216-223, 226-238, 241-258, 271-280, 295-315, 346-351, 371-385, 396-407, 440-446, 452-457, 460-466, 492-510, 537-543, 546-551, 565-582, 590-595, 635-650, 672-678, 686-701, 705-712, 714-721, 725-731, 762-768, 800-805, 672-727, of Seq.ID No. 75,

aa 5-32, 35-48, 55-76, of Seq.ID No. 76,

aa 7-35, 54-59, 247-261, 263-272, 302-320, 330-339, 368-374, 382-411, 126-143 and 168-186, of Seq.ID No. 77,

aa 5-24, 88-94, 102-113, 132-143, 163-173, 216-224, 254-269, 273-278, 305-313, 321-327, 334-341, 31-61 and 58-74, of Seq.ID No. 78,

aa 16-24, 32-39, 43-49, 64-71, 93-99, 126-141, 144-156, 210-218, 226-233, 265-273, 276-284, 158-220, of Seq.ID No. 79,

aa 49-72, 76-83, 95-105, 135-146, 148-164, 183-205, 57-128, of

Seq.ID No. 80,

aa 6-15, 22-32, 58-73, 82-88, 97-109, 120-131, 134-140, 151-163, 179-185, 219-230, 242-255, 271-277, 288-293, 305-319, 345-356, 368-381, 397-406, 408-420, 427-437, 448-454, 473-482, 498-505, 529-535, 550-563, 573-580, 582-590, 600-605, 618-627, 677-685, 718-725, 729-735, 744-759, 773-784, 789-794, 820-837, 902-908, 916-921, 929-935, 949-955, 1001-1008, 1026-1032, 1074-1083, 1088-1094, 1108-1117, 1137-1142, 1159-1177, 1183-1194, 1214-1220, 1236-1252, 1261-1269, 1289-1294, 1311-1329, 1336-1341, 1406-1413, 1419-1432, 1437-1457, 1464-1503, 1519-1525, 1531-1537, 1539-1557, 1560-1567, 1611-1618, 1620-1629, 1697-1704, 1712-1719, 1726-1736, 1781-1786, 1797-1817, 1848-1854, 1879-1890, 1919-1925, 1946-1953, 1974-1979, 5 to 134, of Seq.ID No. 81,

aa 6-33, 40-46, 51-59, 61-77, 84-104, 112-118, 124-187, 194-248, 252-296, 308-325, 327-361, 367-393, 396-437, 452-479, 484-520, 535-545, 558-574, 582-614, 627-633, 656-663, 671-678, 698-704, 713-722, 725-742, 744-755, 770-784, 786-800, 816-822, 827-837, 483-511, of Seq.ID No. 82,

aa 4-19, 57-70, 79-88, 126-132, 144-159, 161-167, 180-198, 200-212, 233-240, 248-255, 276-286, 298-304, 309-323, 332-346, 357-366, 374-391, 394-406, 450-456, 466-473, 479-487, 498-505, 507-519, 521-530, 532-540, 555-565, 571-581, 600-611, 619-625, 634-642, 650-656, 658-665, 676-682, 690-699, 724-733, 740-771, 774-784, 791-797, 808-815, 821-828, 832-838, 876-881, 893-906, 922-929, 938-943, 948-953, 969-976, 1002-1008, 1015-1035, 1056-1069, 1105-1116, 1124-1135, 1144-1151, 1173-1181, 1186-1191, 1206-1215, 1225-1230, 1235-1242, 6-66, 65-124 and 590-604, of Seq.ID No. 83,

aa 5-32, 66-72, 87-98, 104-112, 116-124, 128-137, 162-168, 174-183, 248-254, 261-266, 289-303, 312-331, 174-249, of Seq.ID No. 84,

aa 4-21, 28-40, 45-52, 59-71, 92-107, 123-137, 159-174, 190-202, 220-229, 232-241, 282-296, 302-308, 312-331, 21-118, of Seq.ID No. 85,

aa 9-28, 43-48, 56-75, 109-126, 128-141, 143-162, 164-195, 197-216, 234-242, 244-251, 168-181, of Seq.ID No. 87,

aa 4-10, 20-42, 50-86, 88-98, 102-171, 176-182, 189-221, 223-244, 246-268, 276-284, 296-329, 112-188, of Seq.ID No. 88,

aa 4-9, 13-24, 26-34, 37-43, 45-51, 59-73, 90-96, 99-113, 160-173, 178-184, 218-228, 233-238, 255-262, 45-105, 103-166 and 66-153, of Seq.ID No. 89,

aa 13-27, 42-63, 107-191, 198-215, 218-225, 233-250, 474-367, of Seq.ID No. 90,  
aa 26-53, 95-123, 164-176, 189-199, 8-48, of Seq.ID No. 92,  
aa 7-13, 15-23, 26-33, 68-81, 84-90, 106-117, 129-137, 140-159, 165-172, 177-230, 234-240, 258-278, 295-319; 22-56, 23-99, 97-115, 233-250 and 245-265, of Seq.ID No. 94,  
aa 13-36, 40-49, 111-118, 134-140, 159-164, 173-183, 208-220, 232-241, 245-254, 262-271, 280-286, 295-301, 303-310, 319-324, 332-339, 1-85, 54-121 and 103-185, of Seq.ID No. 95,  
aa 39-44, 46-80, 92-98, 105-113, 118-123, 133-165, 176-208, 226-238, 240-255, 279-285, 298-330, 338-345, 350-357, 365-372, 397-402, 409-415, 465-473, 488-515, 517-535, 542-550, 554-590, 593-601, 603-620, 627-653, 660-665, 674-687, 698-718, 726-739, 386-402, of Seq.ID No. 96,  
aa 5-32, 34-49, 1-43, of Seq.ID No. 97,  
aa 10-27, 37-56, 64-99, 106-119, 121-136, 139-145, 148-178, 190-216, 225-249, 251-276, 292-297, 312-321, 332-399, 403-458, 183-200, of Seq.ID No. 99,  
aa 5-12, 15-20, 43-49, 94-106, 110-116, 119-128, 153-163, 175-180, 185-191, 198-209, 244-252, 254-264, 266-273, 280-288, 290-297, 63-126, of Seq.ID No. 100,  
aa 5-44, 47-55, 62-68, 70-78, 93-100, 128-151, 166-171, 176-308, 1-59, of Seq.ID No. 101,  
aa 18-28, 36-49, 56-62, 67-84, 86-95, 102-153, 180-195, 198-218, 254-280, 284-296, 301-325, 327-348, 353-390, 397-402, 407-414, 431-455, 328-394, of Seq.ID No. 102,  
aa 7-37, 56-71, 74-150, 155-162, 183-203, 211-222, 224-234, 242-272, 77-128, of Seq.ID No. 103,  
aa 34-58, 63-69, 74-86, 92-101, 130-138, 142-150, 158-191, 199-207, 210-221, 234-249, 252-271, 5-48, of Seq.ID No. 104,  
aa 12-36, 43-50, 58-65, 73-78, 80-87, 108-139, 147-153, 159-172, 190-203, 211-216, 224-232, 234-246, 256-261, 273-279, 286-293, 299-306, 340-346, 354-366, 167-181, of Seq.ID No. 106,  
aa 61-75, 82-87, 97-104, 113-123, 128-133, 203-216, 224-229, 236-246, 251-258, 271-286, 288-294, 301-310, 316-329, 337-346, 348-371, 394-406, 418-435, 440-452 of Seq.ID No. 112,  
aa 30-37, 44-55, 83-91, 101-118, 121-128, 136-149, 175-183, 185-193, 206-212, 222-229, 235-242 of Seq.ID No. 114,  
aa 28-38, 76-91, 102-109, 118-141, 146-153, 155-161, 165-179, 186-202, 215-221, 234-249, 262-269, 276-282, 289-302, 306-314,



- 27 -

321-326, 338-345, 360-369, 385-391 of Seq.ID No. 116,  
aa 9-33, 56-62, 75-84, 99-105, 122-127, 163-180, 186-192, 206-228, 233-240, 254-262, 275-283, 289-296, 322-330, 348-355, 416-424, 426-438, 441-452, 484-491, 522-528, 541-549, 563-569, 578-584, 624-641, 527-544, of Seq.ID No. 142,  
aa 37-42, 57-62, 121-135, 139-145, 183-190, 204-212, 220-227, 242-248, 278-288, 295-30, 304-309, 335-341, 396-404, 412-433, 443-449, 497-503, 505-513, 539-545, 552-558, 601-617, 629-649, 702-711, 736-745, 793-804, 814-829, 843-858, 864-885, 889-895, 905-913, 919-929, 937-943, 957-965, 970-986, 990-1030, 1038-1049, 1063-1072, 1080-1091, 1093-1116, 1126-1136, 1145-1157, 1163-1171, 1177-1183, 1189-1196, 1211-1218, 1225-1235, 1242-1256, 1261-1269, 624-684, of Seq.ID No. 151,  
aa 8-23, 31-38, 42-49, 61-77, 83-90, 99-108, 110-119, 140-147, 149-155, 159-171, 180-185, 189-209, 228-234, 245-262, 264-275, 280-302, 304-330, 343-360, 391-409, 432-437, 454-463, 467-474, 478-485, 515-528, 532-539, 553-567, 569-581, 586-592, 605-612, 627-635, 639-656, 671-682, 700-714, 731-747, 754-770, 775-791, 797-834, 838-848, 872-891, 927-933, 935-942, 948-968, 976-986, 1000-1007, 1029-1037, 630-700, of Seq.ID No. 152,  
aa 17-25, 27-55, 84-90, 95-101, 115-121, 55-101, of Seq.ID No. 154,  
aa 13-28, 40-46, 69-75, 86-92, 114-120, 126-137, 155-172, 182-193, 199-206, 213-221, 232-238, 243-253, 270-276, 284-290, 22-100, of Seq.ID No. 155 and  
aa 7-19, 46-57, 85-91, 110-117, 125-133, 140-149, 156-163, 198-204, 236-251, 269-275, 283-290, 318-323, 347-363, 9-42 and 158-174, of Seq.ID No. 158,  
aa 7-14, 21-30, 34-50, 52-63, 65-72, 77-84, 109-124, 129-152, 158-163, 175-190, 193-216, 219-234 of Seq.ID.No. 168,  
aa 5-24, 38-44, 100-106, 118-130, 144-154, 204-210, 218-223, 228-243, 257-264, 266-286, 292-299 of Seq.ID.No. 174,  
aa 29-44, 74-83, 105-113, 119-125, 130-148, 155-175, 182-190, 198-211, 238-245 of Seq.ID.No. 176, and fragments comprising at least 6, preferably more than 8, especially more than 10 aa of said sequences . All these fragments individually and each independently form a preferred selected aspect of the present invention.

Especially suited helper epitopes may also be derived from these

antigens. Especially preferred helper epitopes are peptides comprising fragments selected from the peptides mentioned in column "Putative antigenic surface areas" in Tables 4 and 5 and from the group of aa 6-40, 583-598, 620-646 and 871-896 of Seq.ID.No.56, aa 24-53 of Seq.ID.No.70, aa 240-260 of Seq.ID.No.74, aa 1660-1682 and 1746-1790 of Seq.ID.No. 81, aa 1-29, 680-709, and 878-902 of Seq.ID.No. 83, aa 96-136 of Seq.ID.No. 89, aa 1-29, 226-269 and 275-326 of Seq.ID.No. 94, aa 23-47 and 107-156 of Seq.ID.No. 114 and aa 24-53 of Seq.ID.No. 142 and fragments thereof being T-cell epitopes.

According to another aspect, the present invention relates to a vaccine comprising such a hyperimmune serum-reactive antigen or a fragment thereof as identified above for *Staphylococcus aureus* and *Staphylococcus epidermidis*. Such a vaccine may comprise one or more antigens against *S. aureus* or *S. epidermidis*. Optionally, such *S. aureus* or *S. epidermidis* antigens may also be combined with antigens against other pathogens in a combination vaccine. Preferably this vaccine further comprises an immunostimulatory substance, preferably selected from the group comprising polycationic polymers, especially polycationic peptides, immunostimulatory deoxynucleotides (ODNs), neuroactive compounds, especially human growth hormone, albumin, Freund's complete or incomplete adjuvans or combinations thereof. Such a vaccine may also comprise the antigen displayed on a surface display protein platform on the surface of a genetically engineered microorganism such as *E. coli*.

According to another aspect, the present invention relates to specific preparations comprising antibodies raised against at least one of the *Staphylococcus aureus* and *Staphylococcus epidermidis* antigens or *Staphylococcus aureus* and *Staphylococcus epidermidis* antigen fragments as defined above. These antibodies are preferably monoclonal antibodies.

Methods for producing such antibody preparations, polyclonal or monoclonal, are well available to the man skilled in the art and properly described in the prior art. A preferred method for producing such monoclonal antibody preparation is characterized by the following steps

- 29 -

- initiating an immune response in a non human animal by administering a Staphylococcus antigen or a fragment thereof, as defined above, to said animal,
- removing the spleen or spleen cells from said animal,
- producing hybridoma cells of said spleen or spleen cells,
- selecting and cloning hybridoma cells specific for said antigen and
- producing the antibody preparation by cultivation of said cloned hybridoma cells and optionally further purification steps.

Preferably, removing of the spleen or spleen cells is connected with killing said animal.

Monoclonal antibodies and fragments thereof can be chimerized or humanized (Graziano et al. 1995) to enable repeated administration. Alternatively human monoclonal antibodies and fragments thereof can be obtained from phage-display libraries (McGuinness et al., 1996) or from transgenic animals (Brüggemann et al., 1996).

A preferred method for producing polyclonal antibody preparations to said Staphylococcus aureus or Staphylococcus epidermidis antigens identified with the present invention is characterized by the following steps

- initiating an immune response in a non human animal by administering a Staphylococcus antigen or a fragment thereof, as defined above, to said animal,
- removing an antibody containing body fluid from said animal,
- and
- producing the antibody preparation by subjecting said antibody containing body fluid to further purification steps.

These monoclonal or polyclonal antibody preparations may be used for the manufacture of a medicament for treating or preventing diseases due to staphylococcal infection. Moreover, they may be used for the diagnostic and imaging purposes.

The method is further described in the following examples and in the figures, but should not be restricted thereto.

- 30 -

Figure 1 shows the pre-selection of sera based on anti-staphylococcal antibody titers measured by ELISA.

Figure 2 shows the size distribution of DNA fragments in the LSA50/6 library in pMAL4.1.

Figure 3 shows the MACS selection with biotinylated human serum. The LSA50/6 library in pMAL9.1 was screened with 10 µg biotinylated, human serum in the first (A) and with 1 µg in the second selection round (B). P.serum, patient serum; B.serum, infant serum. Number of cells selected after the 2<sup>nd</sup> and 3<sup>rd</sup> elution are shown for each selection round.

Figure 4 shows the serum reactivity with specific clones isolated by bacterial surface display as analyzed by Western blot analysis with patient serum at a dilution of 1 : 5000.

Figure 5 shows peptide ELISA with serum from patients and healthy individuals with an epitope identified by ribosome display.

Figure 6 shows representative 2D Immunoblot of *S. aureus* surface proteins detected with human sera. 800 µg protein from *S. aureus*/COL grown on BHI were resolved by IEF (pI 4-7) and SDS-PAGE (9-16%), and subsequently transferred to PVDF membrane. After blocking, the membrane was incubated with sera IC35 (1:20,000). Binding of serum IgG was visualized by an anti-human IgG/HRPO conjugate and ECL development.

Figure 7 demonstrates a representative 2D gel showing *S. aureus* surface proteins stained by Coomassie Blue. 1 mg protein from *S. aureus*/COL were resolved by IEF (pI 4-7) and SDS-PAGE (9-16%). Spots selected for sequencing after serological proteome analysis are marked.

Figures 8A and 8B show the structure of LPXTG cell wall proteins.

Figure 9 shows the IgG response in uninfected (N, C) and infected (P) patients to LPXTGV, a novel antigen and probable surface adhesin of *S. aureus*, discovered by both the inventive bacterial

surface-display and proteomics approaches.

Figure 10 shows the surface staining of *S. aureus* with purified anti-LPXTGV IgGs.

Figure 11 shows a 2D gel where *S. aureus* surface proteins are stained by Coomassie Blue (left). 1 mg protein from *S. aureus*/agr grown to early log phase was resolved by IEF (pI 6-11) and SDS-PAGE (9-16%). Spots selected for sequencing after serological proteome analysis are marked. Corresponding 2D-immunoblot (right). 800 µg protein from the same preparation was resolved in parallel by 2DE, and subsequently transferred to PVDF membrane. After blocking, the membrane was incubated with the P-pool (1:10,000). Binding of serum IgG was visualized by an anti-human IgG/HRPO conjugate and ECL development.

## EXAMPLES

Discovery of novel *Staphylococcus aureus* antigens

### Example 1: Preparation of antibodies from human serum

The antibodies produced against staphylococci by the human immune system and present in human sera are indicative of the *in vivo* expression of the antigenic proteins and their immunogenicity. These molecules are essential for the identification of individual antigens in the approach as the present invention which is based on the interaction of the specific anti-staphylococcal antibodies and the corresponding *S. aureus* peptides or proteins. To gain access to relevant antibody repertoires, human sera were collected from I. patients with acute *S. aureus* infections, such as bacteraemia, sepsis, infections of intravascular and percutan catheters and devices, wound infections, and superficial and deep soft tissue infection. *S. aureus* was shown to be the causative agent by medical microbiological tests. II. A collection of serum samples from uninfected adults was also included in the present analysis, since staphylococcal infections are common, and antibodies are present as a consequence of natural immunization from

previous encounters with Staphylococci from skin and soft tissue infections (furunculus, wound infection, periodontitis etc.).

The sera were characterized for *S. aureus* antibodies by a series of ELISA assays. Several staphylococcal antigens have been used to prove that the titer measured was not a result of the sum of cross-reactive antibodies. For that purpose not only whole cell *S. aureus* (protein A deficient) extracts (grown under different conditions) or whole bacteria were used in the ELISA assays, but also individual cell wall components, such as lipoteichoic acid and peptidoglycan isolated from *S. aureus*. More importantly, a recombinant protein collection was established representing known staphylococcal cell surface proteins for the better characterization of the present human sera collections.

Recently it was reported that not only IgG, but also IgA serum antibodies can be recognized by the FcRIII receptors of PMNs and promote opsonization (Phillips-Quagliata et al., 2000; Shibuya et al., 2000). The primary role of IgA antibodies is neutralization, mainly at the mucosal surface. The level of serum IgA reflects the quality, quantity and specificity of the dimeric secretory IgA. For that reason the serum collection was not only analyzed for anti-staphylococcal IgG, but also for IgA levels. In the ELISA assays highly specific secondary reagents were used to detect antibodies from the high affinity types, such as IgG and IgA, and avoided IgM. Production of IgM antibodies occurs during the primary adaptive humoral response, and results in low affinity antibodies, while IgG and IgA antibodies had already undergone affinity maturation, and are more valuable in fighting or preventing disease

### **Experimental procedures**

Enzyme linked immune assay (ELISA). ELISA plates were coated with 2-10 µg/ml of the different antigens in coating buffer (sodium carbonate pH 9.2). Serial dilutions of sera (100-100.000) were made in TBS-BSA. Highly specific (cross-adsorbed) HRP (Horse Radish Peroxidase)-labeled anti-human IgG or anti-human IgA secondary antibodies (Southern Biotech) were used according to the manufacturers' recommendations (~ 2.000x). Antigen-antibody complexes were quantified by measuring the conversion of the sub-

- 33 -

strate (ABTS) to colored product based on OD<sub>405nm</sub> readings in an automated ELISA reader (Wallace Victor 1420). The titers were compared at given dilution where the dilution response was linear (Table 1). The ~ 100 sera were ranked based on the reactivity against multiple staphylococcal components, and the highest ones (above 90 percentile) were selected for further analysis in antigen identification. Importantly, the anti-staphylococcal antibodies from sera of clinically healthy individuals proved to be very stable, giving the same high ELISA titers against all the staphylococcal antigens measured after 3, 6 and 9 months (data not shown). In contrast, anti-S. aureus antibodies in patients decrease, then disappear after a couple of weeks following the infection (Coloque-Navarro et al, 1998). However, antibodies from patients are very important, since these are direct proof of the in vivo expression of the bacterial antigens tested in or ELISAs or identified as immunogenic during the screens according to the present invention.

This comprehensive approach followed during antibody characterization is unique, and led to unambiguous identification of anti-staphylococcal hyperimmune sera.

Purification of antibodies for genomic screening. Five sera from both the patient and the noninfected group were selected based on the overall anti-staphylococcal titers. Antibodies against E. coli proteins were removed by either incubating the heat inactivated sera with whole cell E. coli (DH5a, transformed with pHI11, grown under the same condition as used for bacterial display) or with E. coli lysate affinity chromatography for ribosome display. Highly enriched preparations of IgG from the pooled, depleted sera were generated by protein G affinity chromatography, according to the manufacturer's instructions (UltraLink Immobilized Protein G, Pierce). IgA antibodies were purified also by affinity chromatography using biotin-labeled anti-human IgA (Southern Biotech) immobilized on Streptavidin-agarose (GIBCO BRL). The efficiency of depletion and purification was checked by SDS-PAGE, Western blotting, ELISA, and protein concentration measurements. For proteomics, the depletion the IgG and IgA preparation was not necessary, since the secondary reagent ensured the specificity.

**Example 2: Generation of highly random, frame-selected, small-fragment, genomic DNA libraries of *Staphylococcus aureus*****Experimental procedures**

Preparation of staphylococcal genomic DNA. This method was developed as a modification of two previously published protocols (Sohail, 1998, Betley et al., 1984) and originally specifically adapted for the methicillin resistant *Staphylococcus aureus* strain COL to obtain genomic DNA in high quality and large scale. 500 ml BHI (Brain Heart Infusion) medium supplemented with 5 µg/ml Tetracycline was inoculated with bacteria from a frozen stab and grown with aeration and shaking for 18 h at 37°. The culture was then harvested in two aliquots of 250 ml each, centrifuged with 1600 x g for 15 min and the supernatant was removed. Bacterial pellets were carefully re-suspended in 26 ml of 0.1 mM Tris-HCl, pH 7.6 and centrifuged again with 1600 x g for 15 min. Pellets were re-suspended in 20 ml of 1 mM Tris-HCl, pH 7.6, 0.1 mM EDTA and transferred into sterile 50 ml polypropylene tubes. 1 ml of 10 mg/ml heat treated RNase A and 200 U of RNase T1 were added to each tube and the solution mixed carefully. 250 µl of Lysostaphin (10 mg/ml stock, freshly prepared in ddH<sub>2</sub>O) was then added to the tubes, mixed thoroughly and incubated at 40°C for 10 min in a shaking water bath under continuous agitation. After the addition of 1 ml 10 % SDS, 40 µl of Proteinase K (25 mg/ml stock) and 100 µl of Pronase (10 mg/ml), tubes were again inverted several times and incubated at 40°C for 5 min in a shaking water bath. 3.75 ml of 5 M NaCl and 2.5 ml of cetyl trimethyl-ammonium bromide solution (CTAB) (10% w/v, 4% w/v NaCl) were then added and tubes were further incubated at 65°C in a shaking water bath for 10 min. Samples were cooled to room temperature and extracted with PhOH/CHCl<sub>3</sub>/IAA (25:24:1) and with CHCl<sub>3</sub>/IAA (24:1). Aqueous phases were carefully collected and transferred to new sterile 50-ml tubes. To each tube 1.5 ml of Strataclean™ Resin was added, mixed gently but thoroughly and incubated for one minute at room temperature. Samples were centrifuged and the upper layers containing the DNA were collected into clean 50ml-tubes. DNA was precipitated at room temperature by adding 0.6 x volume of Isopropanol, spooled from the solution with a sterile Pasteur pipette and transferred into tubes con-



taining 80% ice cold ethanol. DNA was recovered by centrifuging the precipitates with 10-12 000 x g, then dried on air and dissolved in ddH<sub>2</sub>O.

Preparation of small genomic DNA fragments. Genomic DNA fragments were mechanically sheared into fragments ranging in size between 150 and 300 bp using a cup-horn sonicator (Bandelin Sonoplus UV 2200 sonicator equipped with a BB5 cup horn, 10 sec. pulses at 100 % power output) or into fragments of size between 50 and 70 bp by mild DNase I treatment (Novagen). It was observed that sonication yielded a much tighter fragment size distribution when breaking the DNA into fragments of the 150-300 bp size range. However, despite extensive exposure of the DNA to ultrasonic wave-induced hydromechanical shearing force, subsequent decrease in fragment size could not be efficiently and reproducibly achieved. Therefore, fragments of 50 to 70 bp in size were obtained by mild DNase I treatment using Novagen's shotgun cleavage kit. A 1:20 dilution of DNase I provided with the kit was prepared and the digestion was performed in the presence of MnCl<sub>2</sub> in a 60 µl volume at 20°C for 5 min to ensure double-stranded cleavage by the enzyme. Reactions were stopped with 2 µl of 0.5 M EDTA and the fragmentation efficiency was evaluated on a 2% TAE-agarose gel. This treatment resulted in total fragmentation of genomic DNA into near 50-70 bp fragments. Fragments were then blunt-ended twice using T4 DNA Polymerase in the presence of 100 µM each of dNTPs to ensure efficient flushing of the ends. Fragments were used immediately in ligation reactions or frozen at -20°C for subsequent use.

Description of the vectors. The vector pMAL4.1 was constructed on a pEH1 backbone (Hashemzadeh-Bonehi et al., 1998) with the Kanamycin resistance gene. In addition it harbors a b-lactamase (bla) gene cloned into the multiple cloning site. The bla gene is preceded by the leader peptide sequence of ompA to ensure efficient secretion across the cytoplasmic membrane. A Sma I restriction site serves for library insertion. The Sma I site is flanked by an upstream FseI site and a downstream NotI site which were used for recovery of the selected fragments. The three restriction sites are inserted after the ompA leader sequence in such a way that the bla gene is transcribed in the -1 reading frame result-

- 36 -

ing in a stop codon 15 bp after the NotI site. A +1 bp insertion restores the bla ORF so that b-lactamase protein is produced with a consequent gain of Ampicillin resistance.

The vector pMAL4.31 was constructed on a pASK-IBA backbone (Skerra, 1994) with the b-lactamase gene exchanged with the Kanamycin resistance gene. In addition it harbors a b-lactamase (bla) gene cloned into the multiple cloning site. The sequence encoding mature b-lactamase is preceded by the leader peptide sequence of ompA to allow efficient secretion across the cytoplasmic membrane. Furthermore a sequence encoding the first 12 amino acids (spacer sequence) of mature b-lactamase follows the ompA leader peptide sequence to avoid fusion of sequences immediately after the leader peptidase cleavage site, since e.g. clusters of positive charged amino acids in this region would decrease or abolish translocation across the cytoplasmic membrane (Kajava et al., 2000). A SmaI restriction site serves for library insertion. The SmaI site is flanked by an upstream FseI site and a downstream NotI site which were used for recovery of the selected fragment. The three restriction sites are inserted after the sequence encoding the 12 amino acid spacer sequence in such a way that the bla gene is transcribed in the -1 reading frame resulting in a stop codon 15 bp after the NotI site. A +1 bp insertion restores the bla ORF so that b-lactamase protein is produced with a consequent gain of Ampicillin resistance.

The vector pMAL9.1 was constructed by cloning the lamB gene into the multiple cloning site of pEH1. Subsequently, a sequence was inserted in lamB after amino acid 154, containing the restriction sites FseI, SmaI and NotI. The reading frame for this insertion was chosen in a way that transfer of frame-selected DNA fragments excised by digestion with FseI and NotI from plasmids pMAL4.1 or pMAL4.31 to plasmid pMAL9.1 will yield a continuous reading frame of lamB and the respective insert.

The vector pHIE11 was constructed by cloning the fhuA gene into the multiple cloning site of pEH1. Thereafter, a sequence was inserted in fhuA after amino acid 405, containing the restriction site FseI, XbaI and NotI. The reading frame for this insertion was chosen in a way that transfer of frame-selected DNA fragments excised by digestion with FseI and NotI from plasmids pMAL4.1 or

- 37 -

pMAL4.31 to plasmid pHI11 will yield a continuous reading frame of fhuA and the respective insert.

Cloning and evaluation of the library for frame selection. Genomic *S. aureus* DNA fragments were ligated into the SmaI site of either the vector pMAL4.1 or pMAL4.31. Recombinant DNA was electroporated into DH10B electrocompetent *E. coli* cells (GIBCO BRL) and transformants plated on LB-agar supplemented with Kanamycin (50 µg/ml) and Ampicillin (50 µg/ml). Plates were incubated over night at 37°C and colonies collected for large scale DNA extraction. A representative plate was stored and saved for collecting colonies for colony PCR analysis and large-scale sequencing. A simple colony PCR assay was used to initially determine the rough fragment size distribution as well as insertion efficiency. From sequencing data the precise fragment size was evaluated, junction intactness at the insertion site as well as the frame selection accuracy (3n+1 rule).

Cloning and evaluation of the library for bacterial surface display. Genomic DNA fragments were excised from the pMAL4.1 or pMAL4.31 vector, containing the *S. aureus* library with the restriction enzymes FseI and NotI. The entire population of fragments was then transferred into plasmids pMAL9.1 (LamB) or pHI11 (FhuA) which have been digested with FseI and NotI. Using these two restriction enzymes, which recognise an 8 bp GC rich sequence, the reading frame that was selected in the pMAL4.1 or pMAL4.31 vector is maintained in each of the platform vectors. The plasmid library was then transformed into *E. coli* DH5a cells by electroporation. Cells were plated onto large LB-agar plates supplemented with 50 µg/ml Kanamycin and grown over night at 37°C at a density yielding clearly visible single colonies. Cells were then scraped off the surface of these plates, washed with fresh LB medium and stored in aliquots for library screening at -80°C.

## Results

Libraries for frame selection. Two libraries (LSA50/6 and LSA250/1) were generated in the pMAL4.1 vector with sizes of approximately 50 and 250 bp, respectively. For both libraries a total number of clones after frame selection of  $1-2 \times 10^6$  was

- 38 -

received using approximately 1 µg of pMAL4.1 plasmid DNA and 50 ng of fragmented genomic *S. aureus* DNA. To assess the randomness of the LSA50/6 library, 672 randomly chosen clones were sequenced. The bioinformatic analysis showed that of these clones none was present more than once. Furthermore, it was shown that 90% of the clones fell in the size range of 19 to 70 bp with an average size of 25 bp (Figure 2). All 672 sequences followed the 3n+1 rule, showing that all clones were properly frame selected.

Bacterial surface display libraries. The display of peptides on the surface of *E. coli* required the transfer of the inserts from the LSA50/6 library from the frame selection vector pMAL4.1 to the display plasmids pMAL9.1 (LamB) or pHIE11 (FhuA). Genomic DNA fragments were excised by FseI and NotI restriction and ligation of 5ng inserts with 0.1µg plasmid DNA resulted in  $2-5 \times 10^6$  clones. The clones were scraped off the LB plates and frozen without further amplification.

**Example 3: Identification of highly immunogenic peptide sequences from *S. aureus* using bacterial surface displayed genomic libraries and human serum**

**Experimental procedures**

MACS screening. Approximately  $2.5 \times 10^8$  cells from a given library were grown in 5 ml LB-medium supplemented with 50 µg/ml Kanamycin for 2 h at 37°C. Expression was induced by the addition of 1 mM IPTG for 30 min. Cells were washed twice with fresh LB medium and approximately  $2 \times 10^7$  cells re-suspended in 100 µl LB medium and transferred to an Eppendorf tube.

10 µg of biotinylated, human serum was added to the cells and the suspension incubated over night at 4°C with gentle shaking. 900 µl of LB medium was added, the suspension mixed and subsequently centrifuged for 10 min at 6000 rpm at 4°C. Cells were washed once with 1 ml LB and then re-suspended in 100 µl LB medium. 10 µl of MACS microbeads coupled to streptavidin (Miltenyi Biotech, Germany) were added and the incubation continued for 20 min at 4°C. Thereafter 900 µl of LB medium was added and the MACS microbead cell suspension was loaded onto the equilibrated MS column (Mil-

- 39 -

tenyi Biotech, Germany) which was fixed to the magnet. (The MS columns were equilibrated by washing once with 1 ml 70% EtOH and twice with 2 ml LB medium.)

The column was then washed three times with 3 ml LB medium. The elution was performed by removing the magnet and washing with 2 ml LB medium. After washing the column with 3 ml LB medium, the 2 ml eluate was loaded a second time on the same column and the washing and elution process repeated. The loading, washing and elution process was performed a third time, resulting in a final eluate of 2 ml.

A second round of screening was performed as follows. The cells from the final eluate were collected by centrifugation and re-suspended in 1 ml LB medium supplemented with 50 µg/ml Kanamycin. The culture was incubated at 37°C for 90 min and then induced with 1 mM IPTG for 30 min. Cells were subsequently collected, washed once with 1 ml LB medium and suspended in 10 µl LB medium. Since the volume was reduced, 1 µg of human, biotinylated serum was added and the suspension incubated over night at 4°C with gentle shaking. All further steps were exactly the same as in the first selection round. Cells selected after two rounds of selection were plated onto LB-agar plates supplemented with 50 µg/ml Kanamycin and grown over night at 37°C.

Evaluation of selected clones by sequencing and Western blot analysis. Selected clones were grown over night at 37°C in 3 ml LB medium supplemented with 50 µg/ml Kanamycin to prepare plasmid DNA using standard procedures. Sequencing was performed at MWG (Germany) or in a collaboration with TIGR (U.S.A.).

For Western blot analysis approximately 10 to 20 µg of total cellular protein was separated by 10% SDS-PAGE and blotted onto HybondC membrane (Amersham Pharmacia Biotech, England). The LamB or FhuA fusion proteins were detected using human serum as the primary antibody at a dilution of 1:5000 and anti human IgG antibodies coupled to HRP at a dilution of 1:5000 as secondary antibodies. Detection was performed using the ECL detection kit (Amersham Pharmacia Biotech, England). Alternatively, rabbit anti FhuA or mouse anti LamB antibodies were used as primary antibodies in combination with the respective secondary antibodies cou-

pled to HRP for the detection of the fusion proteins.

## Results

Screening of bacterial surface display libraries by magnetic activated cell sorting (MACS) using biotinylated human serum. The libraries LSA50/6 in pMAL9.1 and LSA250/1 in pHIE11 were screened with a pool of biotinylated, human patient sera (see Example 1) Preparation of antibodies from human serum). The selection procedure was performed as described under Experimental procedures. As a control, pooled human sera from infants that have most likely not been infected with *S. aureus* was used. Under the described conditions between 10 and 50 fold more cells with the patient compared to the infant serum were routinely selected (Figure 3). To evaluate the performance of the screen, approximately 100 selected clones were picked randomly and subjected to Western blot analysis with the same pooled patient serum. This analysis revealed that 30 to 50% of the selected clones showed reactivity with antibodies present in patient serum whereas the control strain expressing LamB or FhuA without a *S. aureus* specific insert did not react with the same serum. Colony PCR analysis showed that all selected clones contained an insert in the expected size range.

Subsequent sequencing of a larger number of randomly picked clones (500 to 800 per screen) led to the identification of the gene and the corresponding peptide or protein sequence that was specifically recognized by the human patient serum used for screening. The frequency with which a specific clone is selected reflects at least in part the abundance and/or affinity of the specific antibodies in the serum used for selection and recognizing the epitope presented by this clone. In that regard it is striking that some clones (ORF2264, ORF1951, ORF0222, lipase and IsaA) were picked up to 90 times, indicating their highly immunogenic property. All clones that are presented in Table 2 have been verified by Western blot analysis using whole cellular extracts from single clones to show the indicated reactivity with the pool of human serum used in the screen.

It is further worth noticing that most of the genes identified by the bacterial surface display screen encode proteins that are ei-

- 41 -

ther attached to the surface of *S. aureus* and/or are secreted. This is in accordance with the expected role of surface attached or secreted proteins in virulence of *S. aureus*.

Assessment of reactivity of highly immunogenic peptide sequences with different human sera. 10 to 30 different human patient sera were subsequently used to evaluate the presence of antibodies against the selected immunogenic peptide sequences that have been discovered in the screen according to the present invention. To eliminate possible cross-reactivity with proteins expressed by *E. coli*, all sera were pre-adsorbed with a total cellular lysate of *E. coli* DHa cells expressing FhuA protein.

This analysis is summarized in Table 2 and as an example shown in Figure 4 and is indicative of the validity of the present screen. It further shows that already short selected epitopes can give rise to the production of antibodies in a large number of patients (ORF1618, ORF1632, IsaA, Empbp, Protein A). Those peptide sequences that are not recognized by a larger set of patient sera may still be part of an highly immunogenic protein, but the recombinant protein itself may be tested for that purpose for each single case.

**Example 4: Identification of highly immunogenic peptide sequences from genomic fragments from *S. aureus* using ribosome display and human serum**

**Experimental procedures**

Ribosome display screening: 2.4 ng of the genomic library from *S. aureus* LSA250/1 in pMAL4.1 (described above) was PCR amplified with oligos ICC277 and ICC202 in order to be used for ribosome display.

Oligos	ICC277
(CGAATAATACGACTCACTATAGGGAGACCACAACGGTTTCCCACTAGTAATAATTTTGTTTAACTTTAAGAAGGAGATATATCCATGCAGaCCTTGCGCGCCTCCC)	and
(GGCCCACCCGTGAAGGTGAGCCGCGTAAGATGCTTTTCTGTGACTGG)	hybridize 5'
and 3' of the Fse I-Not I insertion site of plasmid pMAL4.1, respectively. ICC277 introduces a T7 phage RNA polymerase promoter, a palindromic sequence resulting in a stem-loop structure on the RNA level, a ribosome binding site (RBS) and the translation start of gene 10 of the T7 phage including the ATG start codon.	

Oligo ICC202 hybridizes at nucleotide position 668 of the  $\beta$ -lactamase open reading frame and also introduces a stem-loop structure at the 3' end of the resulting RNA. PCR was performed with the High fidelity PCR kit (Roche Diagnostic) for 25 cycles at 50°C hybridization temperature and otherwise standard conditions.

The resulting PCR library was used in 5 consecutive rounds of selection and amplification by ribosome display similar as described previously (Hanes et al., 1997) but with modifications as described below.

One round of ribosome display contained the following steps: In vitro transcription of 2  $\mu$ g PCR product with the RiboMax kit (**Promega**) resulted in ca. 50  $\mu$ g A. In vitro translation was performed for 9 minutes at 37°C in 22  $\mu$ l volume with 4.4  $\mu$ l Premix Z (250 mM TRIS-acetate pH 7.5, 1.75 mM of each amino acid, 10 mM ATP, 2.5 mM GTP, 5 mM cAMP, 150 mM acetylphosphate, 2.5 mg/ml E. coli tRNA, 0.1 mg/ml folinic acid, 7.5 % PEG 8000, 200 mM potassium glutamate, 13.8 mM Mg(Ac)<sub>2</sub>, 8  $\mu$ l S30 extract (x mg/ml) and about 2  $\mu$ g in vitro transcribed RNA from the pool. S30 extract was prepared as described (Chen et al, 1983). Next, the sample was transferred to an ice-cold tube containing 35.2  $\mu$ l 10 % milk-WBT (TRIS-acetate pH 7.5, 150 mM NaCl, 50 mM Mg(Ac)<sub>2</sub>, 0.1 % Tween-20, 10 % milk powder) and 52.8  $\mu$ l WBTH (as before plus 2.5 mg/ml heparin). Subsequently, immuno precipitation was performed by addition of 10  $\mu$ g purified IgGs, incubation for 90 minutes on ice, followed by addition of 30  $\mu$ l MAGmol Protein G beads (Miltenyi Biotec, 90 minutes on ice). The sample was applied to a pre-equilibrated  $\mu$  column (Miltenyi Biotec) and washed 5 times with ice-cold WBT buffer. Next 20  $\mu$ l EB20 elution buffer (50 mM TRIS-acetate, 150 mM NaCl, 20 mM EDTA, 50  $\mu$ g/ml *S. cerevisiae* RNA) was applied to the column, incubated for 5 minutes at 4°C. Elution was completed by adding 2 x 50  $\mu$ l EB20. The mRNA from the elution sample was purified with the High pure RNA isolation kit (Roche Diagnostics). Subsequent reverse transcription was performed with Superscript II reverse transcriptase kit (Roche Diagnostics) according to the instruction of the manufacturer with 60 pmol oligo ICC202 for 1 hour at 50°C in 50  $\mu$ l volume. 5  $\mu$ l of this mix was used for the following PCR reaction with primers ICC202 and ICC277 as described above.



- 43 -

Three rounds of ribosome display were performed and the resulting selected PCR pool subsequently cloned into plasmid pHI11 (described above) by cleavage with restriction endonucleases NotI and FseI.

Evaluation of selected clones by sequencing and peptide-ELISA analysis: Selected clones were grown over night at 37°C in 3 ml LB medium supplemented with 50 µg/ml Kanamycin to prepare plasmid DNA using standard procedures. Sequencing was performed at MWG (Germany) or at the Institute of Genomic Research (TIGR; Rockville, MD, U.S.A.). Peptides corresponding to the inserts were synthesized and coated in 10 mM NaHCO<sub>3</sub> pH 9.3 at a concentration of 10 µg/ml (50 µl) onto 96-well microtiter plates (Nunc). After blocking with 1% BSA in PBS at 37°C, 1:200 and 1:1000 dilutions of the indicated sera were diluted in 1% BSA/PBS and applied to the wells. After washing with PBS/0.1 % Tween-20, biotin-labeled anti-human IgG secondary antibodies (SBA) were added and these were detected by subsequent adding horseradish-peroxidase-coupled streptavidin according to standard procedures.

## Results

The 250-bp genomic library (LSA250/1) as described above was used for screening. Purified IgGs from uninfected adults but with high titer against *S. aureus* as described above were used for selection of antigenic peptides.

Three rounds of ribosome display selection and amplification were performed according to Experimental procedures; finished by cloning and sequencing the resulting PCR pool.

Sequence analyses of a large number of randomly picked clones (700) led to the identification of the gene and the corresponding peptide or protein sequence that was specifically recognized by the high titer serum used for screening. The frequency with which a specific clone was selected reflects at least in part the abundance and/or affinity of the specific antibodies in the serum used for selection and recognizing the epitope presented by this clone. Remarkably, some clones (ORFs) were picked up to 50 times, indicating their highly immunogenic property. Table 2 shows the ORF name, the Seq.ID No. and the number of times it was identi-

- 44 -

fied by the inventive screen.

For a number of immuno-selected ORFs peptides corresponding to the identified immunogenic region were synthesized and tested in peptide-ELISA for their reactivity towards the sera pool they were identified with and also a number of additional sera from patients who suffered from an infection by *S. aureus*. The two examples in the graphs in figure 5 show the values of peptides from aureolysin and Pls. They are not only hyperimmune reactive against the high titer sera pool but also towards a number of individual patient's sera. All synthesized peptides corresponding to selected immunogenic regions showed reactivity towards the high titer sera pool and Table 2 summarizes the number of times the peptides were reactive towards individual patients sera, similar as described above.

In addition, it is striking that for those ORFs that were also identified by bacterial surface display (described above), very often the actual immunogenic region within the ORF was identical or overlapping with the one identified by ribosome display. This comparison can be seen in Table 2.

**Example 5: Identification of highly immunogenic antigens from *S. aureus* using Serological Proteome Analysis.**

#### **Experimental procedures**

Surface protein preparations from *S. aureus* containing highly immunogenic antigens. *S. aureus* strains COL (Shafer and Iandolo, 1979) and agr- (Recsei et al., 1986) were stored as glycerol stocks at -80°C or on BHI (DIFCO) plates at 4°C. Single clones were used for inoculation of overnight cultures in either BHI ("standard conditions") or RPMI 1640 (GibcoBRL), last one depleted from iron ("stress conditions") by treating o/n with iminodiacetic acid (Sigma). Fresh medium was inoculated 1:100 the next day and bacteria were grown to O.D.<sub>600</sub> between 0.3 and 0.7. Bacteria were harvested by centrifugation and washed with ice-cold PBS. Surface proteins were prepared by lysostaphin treatment under isotonic conditions (Lim et al. 1998). Briefly,  $\sim 3 \times 10^9$  bacteria (according to O.D.<sub>600</sub> = 1 are about  $5 \times 10^7$  bacteria) were re-

- 45 -

suspended in 1 ml digestion buffer containing 35% raffinose (Aldrich Chemical Company), protease inhibitors (Roche) and 5 units lysostaphin (Sigma). After incubation at 37°C for 30 min, protoplasts were carefully sedimented by low-speed centrifugation. This treatment releases surface proteins covalently linked to the pentaglycine bridge of the peptidoglycan cell wall to the supernatant (in Crossley, 1997). Cell surface proteins were either precipitated with methanol/chloroform (Wessel, 1984) or concentrated in centrifugal filter-tubes (Millipore). Protein samples were frozen and stored at -80°C or dissolved in sample buffer and used for isoelectric focusing (IEF) immediately (Pasquali et al. 1997).

Serological proteome analysis of surface protein preparations from *S. aureus*. Samples were obtained from a) *S. aureus*/agr grown under "stress conditions", b) *S. aureus*/COL grown under "standard conditions" and c) *S. aureus*/COL "stress conditions". Loading onto 17 cm-strips containing immobilized pH gradients (pH 4-7, BioRad) was done using the "in-gel-reswelling procedure" (Pasquali et al., 1997). The gels for blotting were loaded with 100-800 µg protein, the preparative gels with 400-1,000 µg protein. Isoelectric focusing and SDS-PAGE (9-16% gradient gels) were performed as described (Pasquali et al., 1997). For Western blotting, proteins were transferred onto PVDF-membranes (BioRad) by semi-dry blotting. Transfer-efficiency was checked by amido-black staining. After blocking (PBS/0.1% Tween 20/10% dry milk, 4°C for 16 h), blots were incubated for two hours with serum (1:2,500-1:100,000 in blocking solution, see Table 3). After washing, specific binding of serum IgG was visualized with a goat-anti-human-IgG / peroxidase conjugate (1:25,000, Southern Biotech) as secondary antibody and development with a chemiluminescence substrate (ECL<sup>TM</sup>, Amersham). A representative result is shown in Figure 6. Membranes were stripped by treatment with 2% β-ME/Laemmli buffer for 30 min at 50-65°C, immediately re-probed with a different serum, and developed as described above. This procedure was repeated up to five times. Signals showing up with patient and/or healthy donor control sera but not with the infant pool, were matched to the Coomassie (BioRad) stained preparative gels (example shown in Figure 7). The results of these serological proteome analyses of surface protein preparations from *S. aureus* are summarized in Table 3.

Sequencing of protein spots by peptide-fingerprint MALDI-TOF-MS and tandem MS/MS. Gel pieces were washed alternately three times with 10 µl digestion buffer (10mM  $\text{NH}_4\text{HCO}_3$ /CAN, 1:1). Afterwards the gel pieces were shrunken with 10 µl ACN and reswollen with 2 µl protease solution (0.05 µg/µl trypsin, Promega, Madison, USA). Digestion was performed for 10-12 h at 37°C. For MALDI-TOF-MS peptides were extracted from the gel pieces with 10 µl digestion buffer. The supernatant was concentrated with ZipTip™ (Millipore, Bedford, USA), the peptides were eluted onto the MALDI target with 0.5 µl extraction buffer (0.1% TFA/CAN, 1:1) and 0.5 µl matrix solution (HCCA in ACN/0.1% TFA, 1:1) was added. MALDI-TOF-MS was done using a REFLEX III (Bruker Daltonik, Bremen, Germany) equipped with a SCOUT384 ion source. The acceleration voltage was set to 25 kV, and the reflection voltage to 28.7 kV. The mass range was set from 700 Da to 4000 Da. Data acquisition was done on a SUN Ultra using XACQ software, version 4.0. Post-analysis data processing was done using XMASS software, version 4.02 (Bruker Daltonik, Bremen, Germany). The results are summarized in tables 3 and 4.

**Example 6: Characterisation of highly immunogenic proteins from *S. aureus***

The antigens identified by the different screening methods with the IgG and IgA preparations from pre-selected sera are further characterized, by the following ways:

1. The proteins are purified, most preferably as recombinant proteins expressed in *E. coli* or in a Gram+ expression system or in an in vitro translation system, and evaluated for antigenicity by a series of human sera. The proteins are modified based on bioinformatic analysis: N-terminal sequences representing the signal peptide are removed, C-terminal regions downstream of the cell wall anchor are also removed, and extra amino acids as tags are introduced for the ease of purification (such as Strep-tagII, His-tag, etc.) A large number of sera is then used in ELISA assays to assess the fraction of human sera containing specific antibodies against the given protein (see Fig. 9 as an example). One of the selected antigens is a 895 aa long protein, what was called LPXTGV (see Tables 2 and 4), since it contains the Gram+ cell wall anchor sequence LPXTG. This signature has been shown to

serve as cleavage site for sortase, a trans-peptidase which covalently links LPXTG motif containing proteins to the peptidoglycan cell wall. LPXTGV is also equipped with a typical signal peptide (Fig. 8). ELISA data using this protein as a Strep-tagged recombinant protein demonstrate that this protein is highly immunogenic (high titers relative to other recombinant proteins) in a high percentage of sera (Fig. 9). Importantly, patients with acute *S. aureus* infection produce significantly more of these anti-LPXTGV antibodies, than healthy normals, suggesting that the protein is expressed during in vivo infection. The overall ELISA titers of the individual antigenic proteins are compared, and the ones inducing the highest antibody levels (highly immunogenic) in most individuals (protein is expressed by most strains in vivo) are favored. Since the antigen specificity and quality (class, subtype, functional, nonfunctional) of the antibodies against *S. aureus* produced in individual patients can vary depending on the site of infection, accompanying chronic diseases (e.g. diabetes) and chronic conditions (e.g. intravascular device), and the individuals' immune response, special attention was paid to the differences detected among the different patient groups, since medical records belonging to each sera were available. In addition, each patient serum is accompanied by the pathogenic strain isolated from the patient at the time of serum sampling.

2. Specific antibodies are purified for functional characterization. The purity and the integrity of the recombinant proteins are checked (e.g. detecting the N-terminal Strep-tag in Western blot analysis in comparison to silver staining in SDS-PAGE). The antigens are immobilized through the tags to create an affinity matrix, and used for the purification of specific antibodies from highly reactive sera. Using as an example strep-tagged LPXTGV as the capture antigen, 20 µg of antibody from 125 mg of IgG were purified. Based on the ELISA data a pure preparation was received, not having e.g. anti-LTA and anti-peptidoglycan (both dominant with unfractionated IgG) activity. The antibodies are then used to test cell surface localization by FACS and fluorescent microscopy (Fig. 10).

### 3. Gene occurrence in clinical isolates

An ideal vaccine antigen would be an antigen that is present in all, or the vast majority of, strains of the target organism to

- 48 -

which the vaccine is directed. In order to establish whether the genes encoding the identified *Staphylococcus aureus* antigens occur ubiquitously in *S. aureus* strains, PCR was performed on a series of independent *S. aureus* isolates with primers specific for the gene of interest. *S. aureus* isolates were obtained from patients with various *S. aureus* infections. In addition several nasal isolates from healthy carriers and several lab strains were also collected and analyzed. The strains were typed according to restriction fragment length polymorphism (RFLP) of the *spa* and *coa* genes (Goh et al. 1992, Frénay et al., 1994, vanden Bergh et al. 1999). From these results 30 different strains were identified - 24 patient isolates, 3 nasal isolates and 3 lab strains. To establish the gene distribution of selected antigens, the genomic DNA of these 30 strains was subjected to PCR with gene specific primers that flank the selected epitope (ORF1361: Seq.ID No. 187 and 188; ORF2268: Seq.ID No. 193 and 194; ORF1951: Seq.ID No. 195 and 196; ORF1632: Seq.ID No. 181 and 182; ORF0766: Seq.ID No. 183 and 184; ORF0576: Seq.ID No. 185 and 186; ORF0222: Seq.ID No. 189 and 190; ORF0360: Seq.ID No. 191 and 192). The PCR products were analyzed by gel electrophoresis to identify a product of the correct predicted size. ORFs 1361, 2268, 1951, 1632, 0766 and 0222 are present in 100% of strains tested and ORF0576 in 97%. However ORF0360 occurred in only 71% of the strains. Thus ORFs 1361, 2268, 1951, 1632, 0766, 0576 and 0222 each have the required ubiquitous presence among *S. aureus* isolates.

These antigens (or antigenic fragments thereof, especially the fragments identified) are especially preferred for use in a vaccination project against *S. aureus*.

#### 4. Identification of highly promiscuous HLA-class II helper epitopes within the ORFs of selected antigens

The ORFs corresponding to the antigens identified on the basis of recognition by antibodies in human sera, most likely also contain linear T-cell epitopes. Especially the surprising finding in the course of the invention that even healthy uninfected, non-colonized individuals show extremely high antibody titers (> 100,000 for some antigens, see Example 5) which are stable for >1 year (see Example 1), suggests the existence of T-cell dependent memory most probably mediated by CD4+ helper-T-cells. The molecular

definition of the corresponding HLA class II helper-epitopes is usefull for the design of synthetic anti-staphylococcal vaccines, which can induce immunological memory. In this scenario the helper-epitopes derived from the staphylococcal antigens provide "cognate help" to the B-cell response against these antigens or fragments thereof. Moreover it is possible to use these helper-epitopes to induce memory to T-independent antigens like for instance carbohydrates (conjugate vaccines). On the other hand, intracellular occurring staphylococci can be eliminated by CD8+ cytotoxic T-cells, which recognize HLA class I restricted epitopes.

T-cell epitopes can be predicted by various public domain algorithms: [http://bimas.dcrt.nih.gov/molbio/hla\\_bind/](http://bimas.dcrt.nih.gov/molbio/hla_bind/) (Parker et al. 1994), <http://134.2.96.221/scripts/MHCServer.dll/home.htm> (Rammensee et al. 1999), <http://mypage.ihost.com/usinet.hamme76/> (Sturniolo et al. 1999). The latter prediction algorithm offers the possibility to identify promiscuous helper-epitopes, i.e. peptides that bind to several HLA class II molecules. In order to identify highly promiscuous helper-epitopes within staphylococcal antigens the ORFs corresponding to Seq ID 64 (IsaA), Seq ID 114 (POV2), Seq ID 89 (ORF0222), Seq ID 70 (LPXTGIV), Seq ID 56 (LPXTGV), Seq ID 142 (LPXTGVI), Seq ID 81 (ORF3200), Seq ID 74 (ORF1951), Seq ID 94 (Empbp), Seq ID 83 (autolysin) and Seq ID 58 (ORF2498) were analyzed using the TEPITOPE package <http://mypage.ihost.com/usinet.hamme76/> (Sturniolo et al. 1999). The analysis was done for 25 prevalent DR-alleles and peptides were selected if they were predicted to be a) strong binders (1% threshold) for at least 10/25 alleles or b) intermediate (3% threshold) binders for at least 17/25 alleles.

The following peptides containing one or several promiscuous helper-epitopes were selected (and are claimed):

Seq ID 56:	pos. 6-40, 583-598, 620-646, 871-896
Seq ID 58:	no peptide fulfills selection criteria
Seq ID 64:	no peptide fulfills selection criteria
Seq ID 70:	pos. 24-53
Seq ID 74:	pos. 240-260
Seq ID 81:	pos. 1660-1682, 1746-1790
Seq ID 83:	pos. 1-29, 680-709, 878-902

- 50 -

Seq ID **89**: pos. 96-136  
Seq ID **94**: pos. 1-29, 226-269, 275-326  
Seq ID **114**: pos. 23-47, 107-156  
Seq ID **142**: pos. 24-53

The corresponding peptides or fragments thereof (for instance overlapping 15-mers) can be synthesized and tested for their ability to bind to various HLA molecules in vitro. Their immunogenicity can be tested by assessing the peptide (antigen)-driven proliferation (BrdU or 3H-thymidine incorporation) or the secretion of cytokines (ELISpot, intracellular cytokine staining) of T-cells in vitro (Mayer et al. 1996, Schmittel et al. 2000, Sester et al. 2000). In this regard it will be interesting to determine quantitative and qualitative differences in the T-cell response to the staphylococcal antigens or the selected promiscuous peptides or fragments thereof in populations of patients with different staphylococcal infections, or colonization versus healthy individuals neither recently infected nor colonized. Moreover, a correlation between the antibody titers and the quantity and quality of the T-cell response observed in these populations is expected. Alternatively, immunogenicity of the predicted peptides can be tested in HLA-transgenic mice (Sonderstrup et al. 1999).

Similar approaches can be taken for the identification of HLA class I restricted epitopes within staphylococcal antigens.

#### **Synthetic peptides representing one or more promiscuous T helper epitopes from S.aureus**

Partially overlapping peptides spanning the indicated regions of Seq ID **56** (LPXTGV), Seq ID **70** (LPXTGIV), Seq ID **74** (ORF1hom1), Seq ID **81** (EM\_BP), Seq ID **83** (Autolysin), Seq ID **89** (ORF1hom2), Seq ID **94** (EMPBP), Seq ID **114** (POV2) and Seq ID **142** (LPXTGVI) were synthesized. Sequences of the individual peptides are given in Table 5. All peptides were synthesized using Fmoc chemistry, HPLC purified and analyzed by mass spectrometry. Lyophilized peptides were dissolved in DMSO and stored at -20°C at a concentration of 5-10 mM.

#### **Binding of synthetic peptides representing promiscuous T helper**



**epitopes to HLA molecules in vitro**

Binding of peptides to HLA molecules on the surface of antigen-presenting cells is a prerequisite for activation of T cells. Binding was assessed in vitro by two independent biochemical assays using recombinant soluble versions of HLA class II molecules. One assay measures the concentration dependent competitive replacement of a labeled reference peptide by the test peptides. The second assay is based on the formation of SDS-stable complexes upon binding of high- and intermediate affinity ligands. A summary of the results obtained by the two assays is given in Table 5.

Soluble HLA molecules (DRA1\*0101/DRB1\*0101 and DRA1\*0101/DRB1\*0401) were expressed in SC-2 cells and purified as described in Aichinger et al., 1997. For the competition assay (Hammer et al. 1995) HLA molecules were applied between 50 and 200 ng/well. For DRB1\*0101 biotinilated indicator peptide HA (PKYVKQNTLKLAT, Valli et al. 1993) was used at 0.008  $\mu$ M. For DRB1\*0401 biotinilated indicator peptide UD4 (YPKFVKQNTLKAA, Valli et al. 1993) was used between 0.03 and 0.06  $\mu$ M. Test peptides were used in serial dilutions from 0.02 nM to 200  $\mu$ M. Molecules, indicator and test peptides were incubated overnight at 37°C, pH 7. HLA:peptide complexes obtained after incubation with serial dilutions of test and reference peptides (the known high-affinity binders HA and UD4 were used as positive control) were captured in ELISA plates coated with antibody L243, which is known to recognize a conformational epitope formed only by correctly associated heterodimers. Incorporated biotin was measured by standard colorimetric detection using a streptavidin-alkaline phosphatase conjugate (Dako) with NBT/BCIP tablets (Sigma) as substrate and automated OD reading on a Victor reader (Wallac).

**T cell response against promiscuous T helper epitopes assessed by IFN $\gamma$  ELISpot assay**

Upon antigenic stimulation T cells start to proliferate and to secrete cytokines such as interferon gamma (IFN $\gamma$ ). Human T cells specifically recognizing epitopes within S.aureus antigens were detected by IFN $\gamma$ -ELISpot (Schmittl et al. 2000). PBMCs from healthy individuals with a strong anti-S.aureus IgG response were isolated from 50-100 ml of venous blood by ficoll density gradi-

ent centrifugation and used after freezing and thawing. Cells were seeded at 200,000/well in 96-well plates. Peptides were added as mixtures corresponding to individual antigens, in both cases at 10 µg/ml each. Concanavalin A (Amersham) and PPD (tuberculin purified protein derivate, Statens Serum Institute) served as assay positive controls, assay medium without any peptide as negative control. After overnight incubation in Multi Screen 96-well filtration plates (Millipore) coated with the anti-human IFNγ monoclonal antibody B140 (Bender Med Systems) the ELISPOT was developed using the biotinylated anti-human IFNγ monoclonal antibody B308-BT2 (Bender Med Systems), Streptavidin-alkaline phosphatase (DAKO) and BCIP/NBT alkaline phosphatase substrate (SIGMA). Spots were counted using an automatic plate reader (Bioreader 2000, BIO-SYS). Spots counted in wells with cells stimulated with assay medium only (negative control, generally below 10 spots / 100.000 cells) were regarded as background and subtracted from spot numbers counted in wells with peptides.

**Table 5: Promiscuous T helper epitopes contained in S.aureus antigens**

Amino acid sequences within S.aureus antigens containing highly promiscuous T helper epitopes	binding <sup>1)</sup>	IFNγ ELISPOT <sup>2)</sup>
Seq ID 56 (LPXTGV): pos. 6-40 p6-28 >PKLRSFY S I R K S T L G V A S V I V S T // p24-40 >V I V S T L F L I S Q H Q A Q A //	+ -	44;80;8 ;95;112
Seq ID 56 (LPXTGV): pos. 620-646 p620-646 >F P Y I P D K A V Y N A I V K V V V A N I G Y E G Q //	+	
Seq ID 56 (LPXTGV): pos. 871-896 p871-896 >Q S W W G L Y A L L G M L A L F I P K F R K E S K //	-	
Seq ID 70 (LPXTGIV): pos. 24-53 p24-53 >Y S I R K F T V G T A S I L I G S L M Y L G T Q Q E A E A //	nd	34;14;0 ;57;16
Seq ID 74 (ORF1hom1): pos. 240-260 p240-260 >M N Y G Y G P G V V T S R T I S A S Q A //	+	47;50;0 ;85;92

Seq ID 81 (EM_BP): pos. 1660-1682 p1660-1682 >NEIVLETIRDINNAHTLQQVEA//	nd	2;14;5; 77;26
Seq ID 81 (EM_BP): pos. 1746-1790 p1746-1773 >LHMRHFSNNFGNVIKNAIGVVGISGLLA// p1753-1779 >NNFGNVIKNAIGVVGISGLLASFWFFI// p1777-1789 >FFIAKRRRKEDEE/	nd nd nd	
Seq ID 83 (Autolysin) pos. 1-29 p1-29: >MAKKFNYKLPSMVALTLVGSAVTAHQVQA//	nd	6;35;7; 60;49
Seq ID 83 (Autolysin) pos. 878-902 p878-902: >NGLSMVPWGTKNQVILTGNNIAQG/	nd	
Seq ID 89 (ORF1hom2): pos. 96-136 p96-121 >GESLNIIASRYGVSVDQLMAANNLRG// p117-136 >NNLRGYLIMPNQTLQIPNG//	- -	0;35;0; 29;104
Seq ID 94 (EMPBP): pos. 1-29 p4-29: >KLLVLTMTSLFATQIMNSNHAKASV//	+	
Seq ID 94 (EMPBP): pos. 226-269 p226-251 >IKINHFCVVPQINSFKVIPPYGHNS// p254-270 >MHVPSFQNNTTATHQN//	- +	26;28;1 6;43;97
Seq ID 94 (EMPBP): pos. 275-326 p275-299 >YDYKYFYSYKVVKGVKKYFSFSQS// p284-305 >YKVVKGVKKYFSFSQSNKYKIG// p306-326 >PSLNIKNVNYQYAVPSYSPT//	+ + +	
Seq ID 114 (POV2): pos. 23-47 p23-47 >AGGIFYNQTNQQLLVLCGDMGGHK//	-	49;20;4 ;77;25
Seq ID 114 (POV2): pos. 107-156 p107-124 >ALVFEKSVVIANVGDSRA/ p126-146 >RAYVINSRQIEQITS DH SFVN// p142-158 >SFVNHLVLTGQITPEE//	- nd nd	
Seq ID 142 (LPXTGVI): pos. 1-42 p6-30 >KEFKSFYSIRKSSLGVA SVAISTL// p18-42 >SSLGVA SVAISTLLLLMSNGEAQA//	++ nd	0;41;20 ;88;109
Seq ID 142 (LPXTGVI): pos. 209-244 p209-233 >IKLVSYDTVKDYAIRFSVSNGTKA// p218-244 >KDYAIRFSVSNGT KAVKIVSSTHFNN//	+ +	
Seq ID 142 (LPXTGVI): pos. 395-428 p395-418 >FMVEGQRVRTISTYAINNTRCTIF// p416-428 >TIFRYVEGKSLYE//	- -	

- 54 -

Seq ID 142 (LPXTGVI): pos. 623-647		
p623-647 >MTLPLMALLALSSIVAFVLPRKRKN //	-	

<sup>1)</sup> binding to soluble DRA1\*0101/DRB1\*0401 molecules was determined using a competition assay (+, ++: binding, -: no competition up to 200 µM test peptide; nd: not done)

<sup>2)</sup> results from 5 healthy individuals with strong anti-S.aureus IgG response. Data are represented as spots/200.000 cells (background values are subtracted)

5. Antigens may be injected into mice - and the antibodies against these proteins can be measured.

6. Protective capacity of the antibodies induced by the antigens through vaccination can be assessed in animal models.

Both 5. and 6. are methods well available to the skilled man in the art.

#### Example 7: Applications

A) An effective vaccine offers great potential for patients facing elective surgery in general, and those receiving endovascular devices, in particular. Patients suffering from chronic diseases with decreased immune responses or undergoing continuous ambulatory peritoneal dialysis are likely to benefit from a vaccine with S. aureus by immunogenic serum-reactive antigens according to the present invention. Identification of the relevant antigens will help to generate effective passive immunization (humanized monoclonal antibody therapy), which can replace human immunoglobulin administration with all its dangerous side-effects. Therefore an effective vaccine offers great potential for patients facing elective surgery in general, and those receiving endovascular devices, in particular.

S. aureus can cause many different diseases.

1. Sepsis, bacteraemia
2. Haemodialysed patients - bacteriemia, sepsis
3. Peritoneal dialyses patients - peritonitis
4. Patients with endovascular devices (heart surgery, etc) - endocarditis, bacteriemia, sepsis

5. Orthopedic patients with prosthetic devices - septic arthritis
6. Preventive vaccination of general population

B) Passive and active vaccination, both with special attention to T-cells with the latter one: It is an aim to induce a strong T helper response during vaccination to achieve efficient humoral response and also immunological memory. Up till now, there is no direct evidence that T-cells play an important role in clearing *S. aureus* infections, however, it was not adequately addressed, so far. An effective humoral response against proteinaceous antigens must involve T help, and is essential for developing memory. Naïve CD4+ cells can differentiated into Th1 or Th2 cells. Since, innate immunological responses (cytokines) will influence this decision, the involvement of T-cells might be different during an acute, serious infection relative to immunization of healthy individuals with subunit vaccines, not containing components which impair the immune response during the natural course of the infection. The consequences of inducing Th1 or Th2 responses are profound. Th1 cells lead to cell-mediated immunity, whereas Th2 cells provide humoral immunity.

### C) Preventive and therapeutic vaccines

Preventive: active vaccination/passive immunization of people in high risk groups, before infection

Therapeutic: passive vaccination of the already sick.

Active vaccination to remove nasal carriage

### Specific example for an application

## Elimination of MRSA carriage and prevention of colonization of the medical staff

Carriage rates of *S. aureus* in the nares of people outside of the hospitals varies from 10 to 40%. Hospital patients and personnel have higher carriage rates. The rates are especially high in patients undergoing hemodialysis and in diabetics, drug addicts and patients with a variety of dermatologic conditions. Patients at highest risk for MRSA infection are those in large tertiary-care hospitals, particularly the elderly and immunocompromised, those

- 56 -

in intensive care units, burn patients, those with surgical wounds, and patients with intravenous catheters.

The ELISA data strongly suggest that there is a pronounced IgA response to *S. aureus*, which is not obvious or known from the literature. Since the predominant mucosal immune response is the production of IgA with neutralizing activity, it is clear that the staphylococcal epitopes and antigens identified with the highly pure IgA preparations lead to an efficient mucosal vaccine.

- Clear indication: Everybody's threat in the departments where they perform operation (esp. orthopedics, traumatology, gen. surgery)
- Well-defined population for vaccination (doctors and nurses)
- Health care workers identified as intranasal carriers of an epidemic strain of *S. aureus* are currently treated with mupirocin and rifampicin until they eliminate the bacteria. Sometimes it is not effective, and takes time.
- Available animal model: There are mice models for intranasal carriage.

Table 1: ELISA titers of sera from non-infected individuals against multiple staphylococcal proteins.

Sera ID#	BHI lysate	LTA	PG	CleA	D1+D3	FnBPA	sdrE	sdrC	EBP	enolase	LP309	LP342	coagul	Fib	SrtA	CifB	Map-w
1																	
2	2.....	2.....		8.....	4.....							6.....		3.....			
3	7.....			3.....			1.....	1.....			3.....	2.....	2.....	2.....	3.....	7.....	4.....
4	1*****	1*****	1.....	6.....	2.....	2.....	3.....	6.....	2.....	6,7.....	8.....	3.....			4.....	1.....	3.....
5																	
6								4.....			5.....						
7		6.....					7.....	7.....	7.....	5.....				4.....			7.....
8							8.....	8.....	8.....					5.....	7.....	8,9.....	
9	4,5,6...	4.....	5.....		5.....		6.....	3.....	1.....	3,4.....				1.....		5,6.....	
10																5,6.....	
11					6.....										6.....		
12													4,5.....				
13							5.....	2.....						8.....			
14																	
15	3.....	5.....	2,3.....		5.....						6.....	7.....			8.....		8,9.....
16																	6.....
17																	
18			6,7.....	1.....				3.....								4.....	
19																	1.....
20																	
21				2.....													2.....

Sera ID#	BHI lysate	LTA	PG	CtFA	D1+D3	EnBPA	sdrE	sdrC	EBP	enolase	LP309	LP342	coagul	Fib	SrtA	CtFB	Map-w
22																	
23	4,5,6....			5.....	3.....	6.....	2.....	7.....	4.....	6,7.....	7.....		6,7.....		2.....	2.....	
24							4.....		6.....								8,9.....
25			5.....														
26	8.....													7.....			
27								8.....			4.....	4,5.....	4,5.....		5.....		
28																	
29									1.....								
30																	
31					1.....	1.....							1.....				
32			4.....														
33			8.....	4.....		4.....		5.....									
34					7,8.....					2.....	2.....	1.....	6,7.....	6.....	1.....		
35	4,5,6....	8.....	2,3.....						5.....		1*****					3.....	4.....
36		3.....															
37				7.....	7,8.....								3.....				
38				8.....						3,4.....							
39																	
40		7.....	6,7.....			3.....						4,5.....				8,9.....	



**Table I. ELISA titers of sera from non-infected individuals against multiple staphylococcal proteins.**

Anti-staphylococcal antibody levels were measured individually by standard ELISA with total lysate prepared from *S. aureus* grown in BHI medium (BHI), lipoteichoic acid (LTA), peptidoglycan (PG), 13 recombinant proteins, representing cell surface and secreted proteins, such as clumping factor A and B (ClfA, ClfB), Fibronectin-binding protein (FnBPA), SD-repeat proteins (sdrC, sdrE), MHC Class II analogous protein (map-w), Elastin-binding protein (EBP), enolase (reported to be cell surface located and immunogenic), iron transport lipoproteins (LP309, LP342), sortase (srtA), coagulase (coa), extracellular fibrinogen-binding protein (fib). Two short synthetic peptides representing 2 of the five immunodominant D repeat domains from FnBPA was also included (D1+D3) as antigens. The individual sera were ranked based on the IgG titer, and obtained a score from 1-9. Score 1 labels the highest titer serum and score 8 or 9 labels the sera which were 8<sup>th</sup> or 9<sup>th</sup> among all the sera tested for the given antigen. It resulted in the analyses of the top 20 percentile of sera (8-9/40). The five "best sera" meaning the most hyper reactive in terms of anti-staphylococcal antibodies were selected based on the number of scores 1-8. \*\*\*\* means that the antibody reactivity against the particular antigen was exceptionally high (>2x ELISA units relative to the 2<sup>nd</sup> most reactive serum).

**Table 2a: Immunogenic proteins identified by bacterial surface and ribosome display: *S. aureus***

Bacterial surface display: A, LSA250/1 library in fhuA with patient sera 1 (655); B, LSA50/6 library in lamB with patient sera 1 (484); C, LSA250/1 library in fhuA with IC sera 1 (571); E, LSA50/6 library in lamB with IC sera 2 (454); F, LSA50/6 library in lamB with patient sera P1 (1105); G, LSA50/6 library in lamB with IC sera 1 (471) ); H, LSA250/1 library in fhuA with patient sera 1 (IgA, 708). Ribosome display: D, LSA250/1 library with IC sera (1686). \*, identified 18 times of 33 screened; was therefore eliminated from screen C. \*\*, prediction of antigenic sequences longer than 5 amino acids was performed with the programme ANTI-GENIC (Kolaskar and Tongaonkar, 1990); #, identical sequence present twice in ORF; ##, clone not in database (not sequence by

TIGR).

S. aureus antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno-genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
SaA0003	ORF2963P	repC	5-20, 37-44, 52-59, 87-94, 116-132	C:3	aa 112-189	C:GSBYM94(112-189):26/30	171, 172
SaA0003	ORF2967P	repC	7-19, 46-57, 85-91, 110-117, 125-133, 140-149, 156-163, 198-204, 236-251, 269-275, 283-290, 318-323, 347-363	C:18	aa 9-42 aa 158-174	C:GSBYI53(9-42):1/1	150, 158
0093	ORF1879	SdrC	23-51, 75-80, 90-99, 101-107, 151-157, 173-180, 186-205, 215-226, 239-263, 269-274, 284-304, 317-323, 329-336, 340-347, 360-366, 372-379, 391-397, 399-406, 413-425, 430-436, 444-455, 499-505, 520-529, 553-568, 586-592, 600-617, 631-639, 664-678, 695-701, 891-903, 906-912, 926-940	A:1, D:5, C:1, F:6, G:2	aa 98-182 aa 684-764 aa 836-870	A:GSBXL70(98-182):9/30 D:n.d. C:GSBYH73(815-870):3/16	34, 86
0095	ORF1881	SdrE	25-45, 72-77, 147-155, 198-211, 217-223, 232-238, 246-261, 266-278, 281-294, 299-304, 332-340, 353-360, 367-380, 384-396, 404-409, 418-429, 434-440, 448-460, 465-476, 493-509, 517-523, 531-540, 543-555, 561-566, 576-582, 584-591, 603-617, 633-643, 647-652, 668-674, 677-683, 696-704, 716-728, 744-752, 755-761, 789-796, 809-815, 826-840, 854-862, 887-903, 918-924, 1110-1116, 1125-1131, 1145-1159	C:12, E:2	aa 147-192	C:GSBYH31(147-192):2/14 E:GSBZA27(144-162):23/41	145, 153
0123	ORF1909	unknown	9-28, 43-48, 56-75, 109-126, 128-141, 143-162, 164-195, 197-216, 234-242, 244-251	B:3, E:7, G:1	aa 168-181	B:GSBXF80(168-181):5/27 E:GSBZC17(168-181):25/41	35, 87
0160	ORF1941	unknown	4-10, 20-42, 50-86, 88-98, 102-171, 176-182, 189-221, 223-244, 246-268, 276-284, 296-329	A:1	aa 112-188	A:GSBXO07(112-188):5/30	36, 88
0222	ORF1988	homology with ORF1	4-9, 13-24, 26-34, 37-43, 45-51, 59-73, 90-96, 99-113, 160-173, 178-184, 218-228, 233-238, 255-262	A:52, C:18*, H:19	aa 45-105 aa 103-166 aa 66-153	A:GSBXM63(65-95):1/1 A:GSBXM82(103-166):14/29 A:GSBXXK44-bmd3(65-153):47/51	37, 89
0308	ORF2077	Complement, unknown	13-27, 42-63, 107-191, 198-215, 218-225, 233-250	A:6, B:2, C:47, E:35	complement bp 474-367	A:GSBXXK03(bp473-367):28/69 B:GSBXXD29(bp465-431):10/27	38, 90

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
0317	ORF2088	preprotein translo- case seca subunit	16-29, 64-77, 87-93, 95-101, 127- 143, 150-161, 204-221, 225-230, 236-249, 263-269, 281-309, 311- 325, 337-343, 411-418, 421-432, 435-448, 461-467, 474-480, 483- 489, 508-516, 542-550, 580-589, 602-611, 630-636, 658-672, 688- 705, 717-723, 738-746, 775-786, 800-805, 812-821, 828-834	A:1	aa 1-19	A:GSBXP37(1- 19):6/29	39, 91
0337	ORF2110	Hypothetical pro- tein	26-53, 95-123, 164-176, 189-199	D:12	aa 8-48	D.n.d.	40, 92
0358	ORF2132	Clumping factor A	8-35, 41-48, 59-66, 87-93, 139-144, 156-163, 198-209, 215-229, 236- 244, 246-273, 276-283, 285-326, 328-342, 349-355, 362-370, 372- 384, 396-402, 405-415, 423-428, 432-452, 458-465, 471-477, 484- 494, 502-515, 540-547, 554-559, 869-875, 893-898, 907-924	C:1, D:2, E:1	aa 706-809	D.n.d.	41, 93
0360	ORF2135 Empbp	extracellular matrix and plasma binding protein	7-13, 15-23, 26-33, 68-81, 84-90, 106-117, 129-137, 140-159, 165- 172, 177-230, 234-240, 258-278, 295-319	A:46, B:21, C:11, E:2, F:18, G:7, H: 12	aa 22-56 aa 23-99 aa 97-115 aa 233-250 aa 245-265	A:GSBXXK24(23- 55):1/1 B:GSBXXB43(39- 54):58/71 A:GSBXXK02- bmd1(22-99):59/59 B:GSBXXD82- bdb19(97-115):1/1 F:SALAL03(233- 250):15/41	42, 94
0453	ORF2227	coma operon protein 2	17-25, 27-55, 84-90, 95-101, 115- 121	C:3	aa 55-101	C:GSBYG07(55- 101):1/1	146, 154
0569	ORF1640	V8 protease	5-32, 66-72, 87-98, 104-112, 116- 124, 128-137, 162-168, 174-183, 248-254, 261-266, 289-303, 312- 331	A:1, F:1	aa 174-249	A:GSBXS51(174- 249):11/30	32, 84

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
0576	ORF1633 Autolysin	autolysin, adhe- sion	4-19, 57-70, 79-88, 126-132, 144-159, 161-167, 180-198, 200-212, 233-240, 248-255, 276-286, 298-304, 309-323, 332-346, 357-366, 374-391, 394-406, 450-456, 466-473, 479-487, 498-505, 507-519, 521-530, 532-540, 555-565, 571-581, 600-611, 619-625, 634-642, 650-656, 658-665, 676-682, 690-699, 724-733, 740-771, 774-784, 791-797, 808-815, 821-828, 832-838, 876-881, 893-906, 922-929, 938-943, 948-953, 969-976, 1002-1008, 1015-1035, 1056-1069, 1105-1116, 1124-1135, 1144-1151, 1173-1181, 1186-1191, 1206-1215, 1225-1230, 1235-1242	A:21, B:46, C:55, E:5, F:85, H:19	aa 6-66 aa 65-124 aa 579-592 aa 590-604	A:GSBXN93(6-66):5/16 C:GSBYH05(45-144):7/8 A:GSBXXK66-bmd18(65-124):16/30 B:GSBXXB89(108-123):1/1 B:GSBXXB02(590-603):39/71 F:SALAM15(579-592):25/41	31, 83
0657	ORF un- known	LPXTGVI protein	9-33, 56-62, 75-84, 99-105, 122-127, 163-180, 186-192, 206-228, 233-240, 254-262, 275-283, 289-296, 322-330, 348-355, 416-424, 426-438, 441-452, 484-491, 541-549, 563-569, 578-584, 624-641	A:2, B:27, F:15	aa 527-544	B:GSBXE07-bdb1(527-542):11/71 F:SALAX70(526-544):11/41	1, 142
0749	ORF1462	Carbamoyl-phos- phate synthase	8-23, 31-38, 42-49, 61-77, 83-90, 99-108, 110-119, 140-147, 149-155, 159-171, 180-185, 189-209, 228-234, 245-262, 264-275, 280-302, 304-330, 343-360, 391-409, 432-437, 454-463, 467-474, 478-485, 515-528, 532-539, 553-567, 569-581, 586-592, 605-612, 627-635, 639-656, 671-682, 700-714, 731-747, 754-770, 775-791, 797-834, 838-848, 872-891, 927-933, 935-942, 948-968, 976-986, 1000-1007, 1029-1037	C:2	aa 630-700	C:GSBYK17(630-700):5/9	144, 152
944	ORF1414	Yfix	6-33, 40-46, 51-59, 61-77, 84-104, 112-118, 124-187, 194-248, 252-296, 308-325, 327-361, 367-393, 396-437, 452-479, 484-520, 535-545, 558-574, 582-614, 627-633, 656-663, 671-678, 698-704, 713-722, 725-742, 744-755, 770-784, 786-800, 816-822, 827-837	D:4	aa 483-511	D:n.d.	30, 82
1050	ORF1307	unknown	49-72, 76-83, 95-105, 135-146, 148-164, 183-205	A:1, H:45	aa 57-128	A:GSBXM26(57-128):7/30	28, 80

S. <i>aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
1209	ORF3006	hemN homolog	12-36, 43-50, 58-65, 73-78, 80-87, 108-139, 147-153, 159-172, 190- 203, 211-216, 224-232, 234-246, 256-261, 273-279, 286-293, 299- 306, 340-346, 354-366	B:7, F:8	aa 167-181	B:GSBXB76(167- 179):25/71 F:SALBC54(169- 183):18/41	54, 106
1344	ORF0212	NifS protein homolog	8-16, 22-35, 49-58, 70-77, 101-121, 123-132, 147-161, 163-192, 203- 209, 216-234, 238-249, 268-274, 280-293, 298-318, 328-333, 339- 345, 355-361, 372-381	A:11	aa 34-94	A:GSBXX59- bmd21(34-94):6/29	5, 141
1356	ORF0197	Hypothetical pro- tease	28-55, 82-100, 105-111, 125-131, 137-143	D:12	aa 1-49	D:n.d.	4, 57
1361	ORF0190	LPXTGV protein	5-39, 111-117, 125-132, 134-141, 167-191, 196-202, 214-232, 236- 241, 244-249, 292-297, 319-328, 336-341, 365-380, 385-391, 407- 416, 420-429, 435-441, 452-461, 477-488, 491-498, 518-532, 545- 556, 569-576, 581-587, 595-602, 604-609, 617-640, 643-651, 702- 715, 723-731, 786-793, 805-811, 826-839, 874-889	A:1, B:23, E:3, F:31	aa 37-49 aa 63-77 aa 274-334	B:GSBXF81(37- 49):1/1 B:GSBXXD45- bdb4(62-77):12/70 A:GSBXL77(274- 334):5/30 F:SALAP81(62- 77):10/41	3, 56
1371	ORF0175	YtpT, conserved hypothetical pro- tein	37-42, 57-62, 121-135, 139-145, 183-190, 204-212, 220-227, 242- 248, 278-288, 295-30, 304-309, 335-341, 396-404, 412-433, 443- 449, 497-503, 505-513, 539-545, 552-558, 601-617, 629-649, 702- 711, 736-745, 793-804, 814-829, 843-858, 864-885, 889-895, 905- 913, 919-929, 937-943, 957-965, 970-986, 990-1030, 1038-1049, 1063-1072, 1080-1091, 1093-1116, 1126-1136, 1145-1157, 1163-1171, 1177-1183, 1189-1196, 1211-1218, 1225-1235, 1242-1256, 1261-1269	C:3, E:2, G:1	aa 624-684 aa 891-905	C:GSBYG95(624- 684):7/22 E:GSBZB45(891- 905):10/41	143, 151
1491	ORF0053	Cmp binding fac- tor I homolog	12-29, 34-40, 63-71, 101-110, 114- 122, 130-138, 140-195, 197-209, 215-229, 239-253, 255-274	A:7, C:2, E:7, F:4	aa 39-94	A:GSBXM13(39- 94):10/29 F:SALAY30(39- 53):4/41	2, 55
1616	ORF1180	leukocidin F ho- molog	16-24, 32-39, 43-49, 64-71, 93-99, 126-141, 144-156, 210-218, 226- 233, 265-273, 276-284	A:10	aa 158-220	A:GSBXXK06(158- 220):8/29	27, 79
1618	ORF1178	LukM homolog	5-24, 88-94, 102-113, 132-143, 163-173, 216-224, 254-269, 273- 278, 305-313, 321-327, 334-341	A:13, B:3 C:36, E:4, F:12, G:2, H:10	aa 31-61 aa 58-74	A:GSBXXK60(31- 61):20/29 B:GSBXB48(58- 74):49/71 F:SALAY41(58- 74):30/41	26, 78

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
1632	ORF1163	SdrH homolog	7-35, 54-59, 247-261, 263-272, 302-320, 330-339, 368-374, 382- 411	B:6, E:11, F:34	aa 105-119 aa 126-143 aa 168-186	B:GSBXG53(168- 186):39/71 F:SALAP07(105- 119):11/41	25, 77
1763	ORF1024	unknown	5-32, 35-48, 55-76	C:3	complement bp 237-170	C:GSBYI30(98aa):1 /1	24, 76
1845	ORF0942	Hyaluronate lyase	10-26, 31-44, 60-66, 99-104, 146- 153, 163-169, 197-205, 216-223, 226-238, 241-258, 271-280, 295- 315, 346-351, 371-385, 396-407, 440-446, 452-457, 460-466, 492- 510, 537-543, 546-551, 565-582, 590-595, 635-650, 672-678, 686- 701, 705-712, 714-721, 725-731, 762-768, 800-805	D:5, F:2	aa208-224 aa 672-727	D:n.d.	23, 75
1951	ORF0831	homology with ORF1	5-22, 42-50, 74-81, 139-145, 167- 178, 220-230, 246-253, 255-264	A:223, B:56, C:167, E:43, F:100, G:13, H:102	aa 137-237 aa 250-267	B:GSBXC07(180- 190):1/1 A:GSBXXK29(177- 195):15/29 B:GSBXD43(250- 267):10/71 F:SALAM13(178- 191):20/41	22, 74
1955	ORF0826	homology with ORF1	4-9, 15-26, 65-76, 108-115, 119- 128, 144-153	A:1, B:3, E:1, F:8	aa 38-52 aa 66-114	A:GSBXR10(66- 114):5/30 F:SALAM67(37- 52):16/41	21, 73
2031	ORF0749	unknown	10-26, 31-43, 46-58, 61-66, 69-79, 85-92, 100-115, 120-126, 128-135, 149-155, 167-173, 178-187, 189- 196, 202-222, 225-231, 233-240, 245-251, 257-263, 271-292, 314- 322, 325-334, 339-345	B:2, F:2	aa 59-74	B:GSBXC01(59- 71):11/26	20, 72
2086	ORF0691 Sbi	IgG binding protein	6-20, 53-63, 83-90, 135-146, 195- 208, 244-259, 263-314, 319-327, 337-349, 353-362, 365-374, 380- 390, 397-405, 407-415	A:1, B:8, E:24, F:9, G:137	aa 208-287 aa 261-276 aa 286-314	A:GSBXS55(208- 287):38/46 B:GSBXXB34(299- 314):11/71 F:SALAX32(261- 276):21/41	19, 71

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
2180	ORF0594	LPXTGIV protein	11-20, 26-47, 69-75, 84-92, 102-109, 119-136, 139-147, 160-170, 178-185, 190-196, 208-215, 225-233, 245-250, 265-272, 277-284, 300-306, 346-357, 373-379, 384-390, 429-435, 471-481, 502-507, 536-561, 663-688, 791-816, 905-910, 919-933, 977-985, 1001-1010, 1052-1057, 1070-1077, 1082-1087, 1094-1112	A:3, C:3, E:6, F:2, H: 6	aa 493-587 aa 633-715 aa 704-760* aa 760-832 (aa 832-887)*	A:GSBXS61(493-555):1/1 A:GSBXL64(496-585):1/1 A:GSBXS92(760-841):1/1 A:bmd4(704-760):16/30* (A:bmd4(830-885):16/30)* F:SALBC43(519-533):4/41	18, 70
2184	ORF0590	FnbpB	5-12, 18-37, 104-124, 139-145, 154-166, 175-181, 185-190, 193-199, 203-209, 235-244, 268-274, 278-292, 299-307, 309-320, 356-364, 375-384, 390-404, 430-440, 450-461, 488-495, 505-511, 527-535, 551-556, 567-573, 587-593, 599-609, 624-631, 651-656, 665-671, 714-726, 754-766, 799-804, 818-825, 827-833, 841-847, 855-861, 876-893, 895-903, 927-940	A:2, C:4, G:9	aa 701-777 aa 783-822	A:GSBXM62(702-777):28/28 A:GSBXR22(783-855):1/1	17, 69
2186	ORF0588	Fnbp	8-29, 96-105, 114-121, 123-129, 141-147, 151-165, 171-183, 198-206, 222-232, 253-265, 267-277, 294-300, 302-312, 332-338, 362-368, 377-383, 396-402, 410-416, 451-459, 473-489, 497-503, 537-543, 549-559, 581-600, 623-629, 643-649, 655-666, 680-687, 694-700, 707-712, 721-727, 770-782, 810-822, 874-881, 883-889, 897-903, 911-917, 925-931, 933-939, 946-963, 965-973, 997-1010	A:4, C:4, D:5, E:2	aa 710-787 aa 855-975 aa 916-983	C:GSBYN05(710-787):19/25 D:n.d. A:GSBXP01(916-983):17/30	16, 68
2224	ORF0551	unknown	49-56, 62-68, 83-89, 92-98, 109-115, 124-131, 142-159, 161-167, 169-175, 177-188, 196-224, 230-243, 246-252	B:2	aa 34-46	B:GSBxD89(34-46):1/1	15, 67

S. <i>aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
2254	ORF0519	Conserved hypo- thetical protein	14-22, 32-40, 52-58, 61-77, 81-93, 111-117, 124-138, 151-190, 193- 214, 224-244, 253-277, 287-295, 307-324, 326-332, 348-355, 357- 362, 384-394, 397-434, 437-460, 489-496, 503-510, 516-522, 528- 539, 541-547, 552-558, 563-573, 589-595, 602-624, 626-632, 651- 667, 673-689, 694-706, 712-739, 756-790	D:3	aa 403-462	D.n.d.	14, 66
2264	ORF0509	ORF1; homology with putative se- creted antigen precursor from <i>S.</i> <i>epidermidis</i>	5-31, 47-55, 99-104, 133-139, 156- 172, 214-224, 240-247	A:131, B:51, C:13, E:43, F:78, G:2, H:17	aa 7-87 aa 133-242	A:GSBXP22(145- 196):1/1 A:GSBXXK05- bmd16(178- 218):6/29 B:GSBXE24- bdb20(167-178):1/1 F:SALAQ91(173- 184):15/41	13, 65
2268	ORF0503	IsaA, possibly ad- hesion/ aggrega- tion	7-19, 26-45, 60-68, 94-100, 111- 119, 126-137, 143-148, 169-181, 217-228	A:7, B:65, C:3, E:2, F:53	aa 67-116 aa 98-184 aa 182-225	A:GSBXXK88(67- 116):1/1 A:GSBXN19(98- 184):22/29 A:GSBXN32(182- 225):34/71 B:GSBXXB71(196- 209):16/29 F:SALAL22(196- 210):16/41	12, 64
2344	ORF0426	Clumping factor B	4-10, 17-45, 120-127, 135-141, 168-180, 187-208, 216-224, 244- 254, 256-264, 290-312, 322-330, 356-366, 374-384, 391-414, 421- 428, 430-437, 442-449, 455-461, 464-479, 483-492, 501-512, 548- 555, 862-868, 871-876, 891-904	D:9, E:1, F:3, H: 4	aa 706-762 aa 810-852	D.n.d.	11, 63
2351	ORF0418	aureolysin	10-29, 46-56, 63-74, 83-105, 107- 114, 138-145, 170-184, 186-193, 216-221, 242-248, 277-289, 303- 311, 346-360, 379-389, 422-428, 446-453, 459-469, 479-489, 496- 501	A:1, C: 6	aa 83-156	A:GSBXO46(83- 156):14/29	10, 62



S. aureus antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno-genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
2359	ORF0409	ISSP, immunogenic secreted protein precursor, putative	4-29, 92-99, 119-130, 228-236, 264-269, 271-280, 311-317, 321-331, 341-353, 357-363, 366-372, 377-384, 390-396, 409-415, 440-448, 458-470, 504-520, 544-563, 568-581, 584-592, 594-603, 610-616	B:4, F:11	aa 168-184 aa 206-220 aa 297-309	B:GSBXD01(168-184):1/1 B:GSBXD62(205-220):1/1 B:GSBXC17(297-309):6/27 F:SALAL04(205-220):9/41	9, 61
2378	ORF0398	SrpA	18-23, 42-55, 69-77, 85-98, 129-136, 182-188, 214-220, 229-235, 242-248, 251-258, 281-292, 309-316, 333-343, 348-354, 361-367, 393-407, 441-447, 481-488, 493-505, 510-515, 517-527, 530-535, 540-549, 564-583, 593-599, 608-621, 636-645, 656-670, 674-687, 697-708, 726-734, 755-760, 765-772, 785-792, 798-815, 819-824, 826-838, 846-852, 889-904, 907-913, 932-939, 956-964, 982-1000, 1008-1015, 1017-1024, 1028-1034, 1059-1065, 1078-1084, 1122-1129, 1134-1143, 1180-1186, 1188-1194, 1205-1215, 1224-1230, 1276-1283, 1333-1339, 1377-1382, 1415-1421, 1448-1459, 1467-1472, 1537-1545, 1556-1566, 1647-1654, 1666-1675, 1683-1689, 1722-1737, 1740-1754, 1756-1762, 1764-1773, 1775-1783, 1800-1809, 1811-1819, 1839-1851, 1859-1866, 1876-1882, 1930-1939, 1947-1954, 1978-1985, 1999-2007, 2015-2029, 2080-2086, 2094-2100, 2112-2118, 2196-2205, 2232-2243	C:1, D:7, F:4, H:11	aa 198-258 aa 646-727 aa 846-857 aa 2104-2206	C:GSBY173(646-727):2/9 F:SALAO33(846-857):10/41 D:n.d.	8, 60
2466	ORF0302	YycH protein	16-38, 71-77, 87-94, 105-112, 124-144, 158-164, 169-177, 180-186, 194-204, 221-228, 236-245, 250-267, 336-343, 363-378, 385-394, 406-412, 423-440, 443-449	D:14	aa 401-494	D:n.d.	7, 59
2470	ORF0299	Conserved hypothetical protein	4-9, 17-41, 50-56, 63-69, 82-87, 108-115, 145-151, 207-214, 244-249, 284-290, 308-316, 323-338, 348-358, 361-378, 410-419, 445-451, 512-522, 527-533, 540-546, 553-558, 561-575, 601-608, 632-644, 656-667, 701-713, 727-733, 766-780	C:3	aa 414-455	C:GSBYH60(414-455):28/31	169, 170

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
2498	ORF0267	Conserved hypo- thetical protein	33-43, 45-51, 57-63, 65-72, 80-96, 99-110, 123-129, 161-171, 173-179, 185-191, 193-200, 208-224, 227- 246, 252-258, 294-308, 321-329, 344-352, 691-707	D:12	aa 358-411 aa 588-606	D:17/21	6, 58
2548	ORF2711	IgG binding protein A	4-16, 24-57, 65-73, 85-91, 95-102, 125-132, 146-152, 156-163, 184- 190, 204-210, 214-221, 242-252, 262-268, 272-279, 300-311, 320- 337, 433-440, 472-480, 505-523	A:55, B:54, C:35, F:59, G:56, H:38	aa 1-48 aa 47-143 aa 219-285 aa 345-424	A:GSBXX68(1- 73):21/30 A:GSBXX41(47- 135):1/1 A:GSBXN38(219- 285):19/30 A:GSBXL11(322- 375):10/30 B:GSBXXB22(406- 418):37/71 F:SALAM17(406- 418):29/41	53, 105
2577	ORF2683	Hypothetical pro- tein	4-21, 49-56, 65-74, 95-112, 202- 208, 214-235	C:6	aa 99-171	C:GSBYL56(99- 171):1/1	149, 157
2642	ORF2614	unknown	34-58, 63-69, 74-86, 92-101, 130- 138, 142-150, 158-191, 199-207, 210-221, 234-249, 252-271	C:1, E:1	aa 5-48	C:bhc3(5- 48):25/30 <sup>#</sup>	52, 104
2664	ORF2593	Conserved hypo- thetical protein	7-37, 56-71, 74-150, 155-162, 183- 203, 211-222, 224-234, 242-272	D:35	aa 77-128	D:n.d.	51, 103
2670	ORF2588	Hexose transporter	18-28, 36-49, 56-62, 67-84, 86-95, 102-153, 180-195, 198-218, 254- 280, 284-296, 301-325, 327-348, 353-390, 397-402, 407-414, 431- 455	D:16	aa 328-394	D:n.d.	50, 102
2680	ORF2577	Coagulase	4-18, 25-31, 35-40, 53-69, 89-102, 147-154, 159-165, 185-202, 215- 223, 284-289, 315-322, 350-363, 384-392, 447-453, 473-479, 517- 523, 544-550, 572-577, 598-604, 617-623	C:26, G:4, H:8	aa 438-516 aa 505-570 aa 569-619	C:GSBYH16(438- 516):3/5 C:GSBYG24(505- 570):1/7 C:GSBYL82(569- 619):2/7	148, 156
2740	ORF2515	Hypothetical pro- tein	5-44, 47-55, 62-68, 70-78, 93-100, 128-151, 166-171, 176-308	D:4	aa 1-59	D:n.d.	49, 101
2746	ORF2507	homology with ORF1	5-12, 15-20, 43-49, 94-106, 110- 116, 119-128, 153-163, 175-180, 185-191, 198-209, 244-252, 254- 264, 266-273, 280-288, 290-297	A:1, H:13	aa 63-126	A:GSBXO40(66- 123):8/29	48, 100
2797	ORF2470	unknown	10-27, 37-56, 64-99, 106-119, 121- 136, 139-145, 148-178, 190-216, 225-249, 251-276, 292-297, 312- 321, 332-399, 403-458	B:3, E:2, F:13, H:3	aa 183-200 aa 349-363	B:GSBXE85(183- 200):11/27 F:SALAQ47(183- 200):8/41	47, 99

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
2798	ORF2469	Lipase (gch)	12-35, 93-99, 166-179, 217-227, 239-248, 269-276, 288-294, 296- 320, 322-327, 334-339, 344-356, 362-371, 375-384, 404-411, 433- 438, 443-448, 455-464, 480-486, 497-503, 516-525, 535-541, 561- 570, 579-585, 603-622, 633-641	A:41, B:42, C:3, F:35, G:1, H:11	aa 48-136 aa 128-172 aa 201-258	C:GSBYG01(48- 136):2/6 A:GSBXM31- bmd12(128- 188):11/30 B:GSBXE16(165- 177):10/30 A:GSBXN20(201- 258):8/30 F:SALAW05(165- 177):13/41	46, 98
2815	ORF2451	Conserved hypo- thetical protein	5-32, 34-49	D:21	aa 1-43	D:n.d.	45, 97
2914	ORF2351	metC	39-44, 46-80, 92-98, 105-113, 118- 123, 133-165, 176-208, 226-238, 240-255, 279-285, 298-330, 338- 345, 350-357, 365-372, 397-402, 409-415, 465-473, 488-515, 517- 535, 542-550, 554-590, 593-601, 603-620, 627-653, 660-665, 674- 687, 698-718, 726-739	A:1, C:14, F:2	aa 386-402	A:GSBXM18(386- 402):17/29	44, 96
2960	ORF2298	putative Exotoxin	13-36, 40-49, 111-118, 134-140, 159-164, 173-183, 208-220, 232- 241, 245-254, 262-271, 280-286, 295-301, 303-310, 319-324, 332- 339	C:101, E:2, H:58	aa 1-85 aa 54-121 aa 103-195	C:GSBYG32(1- 85):6/7 C:GSBYG61- bhe2(54-121):26/30 C:GSBYN80(103- 195):13/17	43, 95
2963	ORF2295	putative Exotoxin	13-28, 40-46, 69-75, 86-92, 114- 120, 126-137, 155-172, 182-193, 199-206, 213-221, 232-238, 243- 253, 270-276, 284-290	C:3, E:3, G:1	aa 22-100	C:GSBYJ58(22- 100):9/15	147, 155
3002	ORF1704	homology with ORF1	4-21, 28-40, 45-52, 59-71, 92-107, 123-137, 159-174, 190-202, 220- 229, 232-241, 282-296, 302-308, 312-331	A:2, C:1, H:4	aa 21-118	A:GSBXL06(21- 118):50/52	33, 85

- 70 -

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant re- gion (positive/total)	Seq ID no: (DNA +Prot)
3200	ORF1331	putative extracel- lular matrix bind- ing protein	6-15, 22-32, 58-73, 82-88, 97-109, 120-131, 134-140, 151-163, 179- 185, 219-230, 242-255, 271-277, 288-293, 305-319, 345-356, 368- 381, 397-406, 408-420, 427-437, 448-454, 473-482, 498-505, 529- 535, 550-563, 573-580, 582-590, 600-605, 618-627, 677-685, 718- 725, 729-735, 744-759, 773-784, 789-794, 820-837, 902-908, 916- 921, 929-935, 949-955, 1001-1008, 1026-1032, 1074-1083, 1088-1094, 1108-1117, 1137-1142, 1159-1177, 1183-1194, 1214-1220, 1236-1252, 1261-1269, 1289-1294, 1311-1329, 1336-1341, 1406-1413, 1419-1432, 1437-1457, 1464-1503, 1519-1525, 1531-1537, 1539-1557, 1560-1567, 1611-1618, 1620-1629, 1697-1704, 1712-1719, 1726-1736, 1781-1786, 1797-1817, 1848-1854, 1879-1890, 1919-1925, 1946-1953, 1974-1979	A:11, B:11, C:36	aa 5-134	A:GSBXL07(5- 134):6/28	29, 81

**Table 2b: Additional immunogenic proteins identified by bacterial surface and ribosome display: *S. aureus***

Bacterial surface display: A, LSA250/1 library in fhuA with patient sera 1 (655); B, LSA50/6 library in lamB with patient sera 1 (484); C, LSA250/1 library in fhuA with IC sera 1 (571); E, LSA50/6 library in lamB with IC sera 2 (454); F, LSA50/6 library in lamB with patient sera P1 (1105); G, LSA50/6 library in lamB with IC sera 1 (471); H, LSA250/1 library in fhuA with patient sera 1 (IgA, 708). Ribosome display: D, LSA250/1 library with IC sera (1686). \*\*, prediction of antigenic sequences longer than 5 amino acids was performed with the programme ANTIGENIC (Kolaskar and Tongaonkar, 1990). ORF, open reading frame; CRF, reading frame on complementary strand; ARF, alternative reading frame.

<i>S. aureus</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ARF028 0	Putative protein	7-14	F:6	aa 25-43	SALAM59(25-43): 1/1	401, 402
CRF014 5	Putative protein	18-28, 31-37, 40-47, 51-83, 86-126	F:5	aa 81-90	SALAZ40(81-90): 2/12	403, 404
CRF025 0	Putative protein	4-24, 26-46, 49-86	G:8	aa 60-76	SALAJ87(60-76): n.d.	365, 378
CRF030 8	Putative protein	40-46	A:6, B:2, C:47, E:35	aa 5-38	A:GSBXX03(7-36):28/69 B:GSBXD29(10-20):10/27	391, 392
CRF033 7	Unknown	4-17	D:3	aa 1-20	D:n.d.	469; 486
CRF049 7	Putative protein	4-28, 31-53, 58-64	B:13, F:5	aa 18-34	GSBXF31(19-34): 1/7	366, 379
CRF053 8	Unknown	4-20	D: 7	aa 1-11	D:n.d.	470; 487
CRF075 0	Putative protein	4-11, 18-24, 35-40	G:44	aa 25-39	SALAG92(26-39): n.d.	367, 380
CRF114 5	Unknown	4-57	D:28	aa 16-32	D:n.d.	464; 481
CRF124 7	Putative protein	4-25, 27-56	F:6	aa 36-46	SALAR23(36-46): n.d.	368, 381
CRF125 6	Putative protein	19-25, 38-47, 55-74, 77-87	G:5	aa 54-67	SALAG65(54-67): n.d.	369, 382
CRF135 6	Unknown	8-15; 18-24; 27-38	D: 5	aa 5-33	D:n.d.	471; 488
CRF176 3	Putative protein	4-9, 23-41, 43-58, 71-85	C:3	aa 1-22	C:GSBYI30(1-22):1/1	407, 408
CRF178 3	Unknown	8-161	D: 5	aa 76-127	D:n.d.	465; 482
CRF184 5	Unknown	4-28; 30-36	D: 272	aa 1-17	D:n.d.	472; 489
CRF186 1	Unknown	6-11; 13-34; 36-50	D:8	aa 4-27	D:n.d.	466; 483
CRF192 8	Putative protein	4-9, 17-30	F:9	aa 13-22	SALAR41(13-22): n.d.	370, 383
CRF200 4	Putative protein	18-38	F:13	aa 16-32	SALAM75(16-32): n.d.	371, 384
CRF215 5	Putative protein	4-15, 30-58	F:9	aa 54-66	SALAQ54(54-66):1/12	372, 385
CRF218 0	Putative protein	4-61, 65-72, 79-95, 97-106	E:13	aa 86-99	GSBZE08(86-99): n.d.	373, 386
CRF220 7	Unknown	4-13	D: 3	aa 17-39	D:n.d.	473; 490
CRF230 5	Putative protein	4-9, 22-33, 44-60	C:5	aa 80-116	GSBYL75(80-116): n.d.	374, 387
CRF234 1	Putative protein	4-23, 30-44, 49-70	F:8	aa 46-55	SALAW31(46-55): n.d.	375, 388
CRF234 9	Putative protein	4-32, 39-46, 62-69, 77-83	B:10, F:4	aa 46-67	GSBXC92(52-67):2/11	376, 389

S. <i>aureus</i> antigeni c protein	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
CRF235 6	Unknown	4-18	D: 3	aa 3-18	D:n.d.	475; 492
CRF245 2	Unknown	4-31	D: 9	aa 7-21	D:n.d.	476; 493
CRF249 8	Putative protein	4-29, 31-41	G:8	aa 2-15	SALAF30(3-15): n.d.	377, 390
CRF255 3	Unknown	4-35; 37-42	D: 4	aa 1-20	D:n.d.	474; 491
CRF257 8	Unknown	5-25; 30-39	D: 11	aa 9-30	D:n.d.	467; 484
CRF266 4	Unknown	11-21	D: 17	aa 1-14	D:n.d.	477; 494
CRF272 9	Putative protein	10-41, 50-57	F:3	aa 40-56	SALAQ25(40-56): 1/1	405, 406
CRF286 3/1	Unknown	4-43	D: 78	aa 17-40	D:n.d.	478; 495
CRF286 3/2	Unknown	4-46	D: 78	aa 44-49	D:n.d.	479; 496
CRFA00 2	Unknown	17-39;52-59	D: 3	aa 38-55	D:n.d.	463; 480
CRFN1	Unknown	5-20; 37-44; 52-59; 87-94; 116-132	D: 4	aa 94-116	D:n.d.	468; 485
ORF018 8	UDP-N-acetyl- D-mannosamine transferase, puta- tive	11-18, 43-56, 58-97, 100-118, 120- 148, 152-171, 195-203, 207-214, 220-227, 233-244	B:4, F:29	aa 197-210	SALAM14(198-209): n.d.	397, 398
ORF025 4	Multidrug efflux transporter	4-33, 35-56, 66-99, 109-124, 136- 144, 151-180, 188-198, 201-236, 238-244, 250-260, 266-290, 294- 306, 342-377	D: 3	aa 155-175	D: n.d.	297, 325
ORF030 7	Conserved hypo- thetical protein	4-23, 25-67, 76-107, 109-148	D: 3	aa 9-44	D: n.d.	298, 326
ORF045 2	Conserved hypo- thetical protein	4-35, 41-47, 55-75, 77-89, 98-113, 116-140, 144-179, 194-215, 232- 254, 260-273, 280-288, 290-302, 315-323, 330-369, 372-385, 413-432	D: 5	aa 105-122	D: n.d.	299, 327
ORF045 6	Na <sup>+</sup> /H <sup>+</sup> Antiporter	4-81	D: 66	aa 1-21	D: n.d.	300, 328
ORF055 6	Iron(III)dicitrate binding protein	5-23, 50-74, 92-99, 107-122, 126- 142, 152-159, 172-179, 188-196, 211-218, 271-282	D: 10	aa 1-18	D: n.d.	301, 329
ORF062 9	Hypothetical Protein	9-44, 63-69, 75-82, 86-106, 108- 146, 153-161, 166-178, 185-192, 233-239, 258-266, 302-307	D: 313	aa 13-37	D: n.d.	302, 330

S. <i>aureus</i> antigen c protein	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF063 7	GTP-binding protein TypA	10-19, 22-32, 95-105, 112-119, 121-133, 140-154, 162-174, 186-200, 207-224, 238-247, 254-266, 274-280, 288-294, 296-305, 343-351, 358-364, 366-373, 382-393, 403-413, 415-422, 440-447, 499-507, 565-575, 578-588	F:3	aa 107-119	F:SALAX70(107-119):10/41	393, 395
ORF071 3	Conserved hypothetical transmembrane protein, putative	22-51, 53-71, 80-85, 93-99, 105-112, 123-146, 151-157, 165-222, 226-236, 247-270, 290-296, 301-324, 330-348, 362-382, 384-391, 396-461, 463-482, 490-515	D: 3	aa 487 - 513	D: n.d.	303, 331
ORF078 8	Cell division pro- tein	104-111, 158-171, 186-197, 204-209, 230-247, 253-259, 269-277, 290-314, 330-340, 347-367, 378-388	D: 4	aa 152 - 178	D: n.d.	304, 332
ORF079 7	Conserved hypothetical protein	11-40, 56-75, 83-102, 112-117, 129-147, 154-168, 174-191, 196-270, 280-344, 354-377, 380-429, 431-450, 458-483, 502-520, 525-532, 595-602, 662-669, 675-686, 696-702, 704-711, 720-735, 739-748, 750-756, 770-779, 793-800, 813-822, 834-862	D:12	aa 196 -218	D: n.d.	305, 333
ORF083 6	Cell Division Pro- tein	34-91, 100-119, 126-143, 147-185, 187-197, 319-335, 349-355, 363-395, 397-412, 414-422, 424-440, 458-465, 467-475, 480-505, 507-529, 531-542, 548-553, 577-589, 614-632, 640-649, 685-704, 730-741, 744-751, 780-786	D:5	aa 26 - 56	D: n.d.	306, 334
ORF131 8	Amino acid per- mease	11-21, 25-32, 34-54, 81-88, 93-99, 105-117, 122-145, 148-174, 187-193, 203-218, 226-260, 265-298, 306-318, 325-381, 393-399, 402-421, 426-448	D: 8	aa127 - 152	D: n.d.	307, 335
ORF132 1	Pyruvat kinase	4-11, 50-67, 89-95, 103-109, 112-135, 139-147, 158-170, 185-204, 213-219, 229-242, 248-277, 294-300, 316-323, 330-335, 339-379, 390-402, 408-422, 431-439, 446-457, 469-474, 484-500, 506-513, 517-530, 538-546, 548-561	E:6	aa 420-432	E:GSBZE16(420-432):5/41	197, 216

<i>S. aureus</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF138 8	LPXTG cell wall anchor motif	11-31, 86-91, 103-111, 175-182, 205-212, 218-226, 242-247, 260-269, 279-288, 304-313, 329-334, 355-360, 378-387, 390-399, 407-435, 468-486, 510-516, 535-547, 574-581, 604-615, 635-646, 653-659, 689-696, 730-737, 802-812, 879-891, 893-906, 922-931, 954-964, 997-1009, 1031-1042, 1089-1096, 1107-1120, 1123-1130, 1149-1162, 1176-1184, 1192-1207, 1209-1215, 1253-1259, 1265-1275, 1282-1295, 1304-1310, 1345-1361, 1382-1388, 1394-1400, 1412-1430, 1457-1462, 1489-1507, 1509-1515, 1535-1540, 1571-1591, 1619-1626, 1635-1641, 1647-1655, 1695-1701, 1726-1748, 1750-1757, 1767-1783, 1802-1807, 1809-1822, 1844-1875, 1883-1889, 1922-1929, 1931-1936, 1951-1967, 1978-1989, 1999-2008, 2023-2042, 2056-2083, 2101-2136, 2161-2177	D: 3	aa 508 - 523	D: n.d.	308, 336
ORF140 2	3,4-dihydroxy-2-butanone-4-phosphate synthase	18-23, 32-37, 54-63, 65-74, 83-92, 107-114, 123-139, 144-155, 157-164, 191-198, 232-240, 247-272, 284-290, 295-301, 303-309, 311-321, 328-341, 367-376	E:3	aa 121-137	E:GSBZB68(121-137):7/41	198, 217
ORF147 3	hemolysin II (LukD-Leuktoxin)	4-36, 39-47, 57-65, 75-82, 108-114, 119-126, 135-143, 189-195, 234-244, 250-257, 266-272, 311-316	F:1	aa 245-256	F:SALAP76(245-256):6/41	199, 218
ORF152 3	Iron uptake regulator	13-27, 29-44, 46-66, 68-81, 97-116, 138-145	D:3	aa 120-135	D: n.d.	309, 337
ORF170 7	inner membrane protein, 60 kDa	4-23, 57-77, 89-103, 119-125, 132-172, 179-197, 210-254, 256-265, 281-287	F:1	aa 104-118	F:SALBC82(104-118):7/41	200, 219
ORF175 4	amiB	5-10, 16-24, 62-69, 77-96, 100-115, 117-126, 137-156, 165-183, 202-211, 215-225, 229-241, 250-260, 267-273, 290-300, 302-308, 320-333, 336-342, 348-356, 375-382, 384-389	D: 3	aa 293 - 312	D: n.d.	310, 338



<i>S. aureus</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF178 3	Mrp protein (fmtB)	5-29, 46-52, 70-76, 81-87, 155-170, 192-197, 206-213, 215-220, 225-231, 249-258, 273-279, 281-287, 300-306, 313-319, 323-332, 335-341, 344-351, 360-382, 407-431, 443-448, 459-468, 475-496, 513-520, 522-537, 543-550, 556-565, 567-573, 580-585, 593-615, 619-631, 633-642, 670-686, 688-698, 759-766, 768-782, 799-808, 842-848, 868-877, 879-917, 945-950, 979-988, 996-1002, 1025-1036, 1065-1084, 1101-1107, 1113-1119, 1125-1142, 1163-1169, 1183-1189, 1213-1219, 1289-1301, 1307-1315, 1331-1342, 1369-1378, 1385-1391, 1410-1419, 1421-1427, 1433-1447, 1468-1475, 1487-1494, 1518-1529, 1564-1570, 1592-1609, 1675-1681, 1686-1693, 1714-1725, 1740-1747, 1767-1774, 1793-1807, 1824-1841, 1920-1937, 1953-1958, 1972-1978, 1980-1986, 1997-2011, 2048-2066, 2161-2166, 2219-2224, 2252-2257, 2292-2298, 2375-2380, 2394-2399, 2435-2440, 2449-2468	F:2	aa 850-860	F:SALAQ36(850-860):8/41	201, 220
ORF184 8	Map-ND2C protein	4-27, 42-66, 70-76, 102-107, 113-118, 133-138	E:5	aa 75-90	E:GSBZB15(75-90):6/41	202, 221
ORF189 1	ribosomal protein L2 (rplB)	31-39, 48-54, 61-67, 75-83, 90-98, 103-119, 123-145, 160-167, 169-176, 182-193, 195-206, 267-273	F:4	aa 239-257	F:SALAV36(239-257):19/41	203, 222
ORF201 1	Putative drug transporter	5-27, 79-85, 105-110, 138-165, 183-202, 204-225, 233-259, 272-292, 298-320, 327-336, 338-345, 363-376, 383-398, 400-422, 425-470, 489-495, 506-518, 536-544, 549-554, 562-568, 584-598, 603-623	D:5	aa 205 - 224	D: n.d.	311, 339
ORF202 7	lactase permease, putative	10-33, 38-71, 73-103, 113-125, 132-147, 154-163, 170-216, 222-248, 250-269, 271-278, 287-335, 337-355, 360-374, 384-408, 425-442, 453-465, 468-476, 478-501, 508-529	E:2	aa 422-436	E:GSBZF58(422-436):6/41	204, 223
ORF208 7	Hemolysin II (putative)	8-27, 52-59, 73-80, 90-99, 104-110, 117-124, 131-140, 189-209, 217-232, 265-279, 287-293, 299-306	D: 3	aa 126 - 147	D: n.d.	312, 340

<i>S. aureus</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF2090	preLukS	8-26, 75-82, 118-126, 136-142, 163-177, 182-189, 205-215, 221-236, 239-248, 268-274	F:2	aa 270-284	F:SALAQ77(270-284):23/41	205, 224
ORF2092	Hemolysin II (preLUK-F)	5-22, 30-47, 58-65, 75-81, 87-92, 99-105, 107-113, 119-126, 189-195, 217-223, 234-244, 250-257, 266-272	F:3	aa 238-253	F:SALAQ67(237-252):10/41	206, 225
ORF2107	Multidrug resistance protein (putative)	10-28, 30-43, 50-75, 80-113, 116-125, 136-167, 170-191, 197-245, 253-329, 345-367, 375-396	D: 9	aa 54 - 104	D: n.d.	313, 341
ORF2192	Transcriptional regulator GntR family, putative	20-31, 46-52, 55-69, 74-79, 89-97, 108-113, 120-128, 141-171, 188-214	D: 3	aa 15 - 35	D: n.d.	314, 342
ORF2305	Amino acid permease	25-79, 91-103, 105-127, 132-149, 158-175, 185-221, 231-249, 267-293, 307-329, 336-343, 346-359, 362-405, 415-442, 446-468	D: 53	aa 363 - 393	D: n.d.	315, 343
ORF2324	Citrate transporter	10-77, 85-96, 99-109, 111-138, 144-155, 167-176, 178-205, 225-238, 241-247, 258-280, 282-294, 304-309, 313-327, 333-383, 386-402, 405-422, 429-453	D: 7	aa 37 - 83	D: n.d.	316, 344
ORF2422	Anion transporter family protein	7-26, 28-34, 36-53, 55-73, 75-81, 87-100, 108-117, 121-138, 150-160, 175-181, 184-195, 202-215, 221-247, 265-271, 274-314, 324-337, 341-412, 414-423, 425-440, 447-462, 464-469	D: 16	aa 275 - 295	D: n.d.	317, 345
ORF2553	SirA	5-22, 54-78, 97-103, 113-123, 130-148, 166-171, 173-180, 192-201, 254-261, 266-272, 310-322	D:3	aa 1 - 22	D: n.d.	318, 346
ORF2555	ornithine cyclodeaminase	20-35, 37-50, 96-102, 109-120, 123-137, 141-150, 165-182, 206-224, 237-256, 267-273, 277-291, 300-305, 313-324	E:2	aa 32-48	E:GSBZB37(32-48):11/41	207, 226
ORF2558	Multidrug resistance efflux protein, putative	11-63, 79-129, 136-191, 209-231, 237-250, 254-276, 282-306, 311-345, 352-373, 376-397	D: 8	aa 84 - 100	D: n.d.	319, 347
ORF2610	Cap5M	4-30, 34-40, 79-85, 89-98, 104-118, 124-139, 148-160, 167-178	D: 13	aa 114 - 141	D: n.d.	320, 348
ORF2613	Cap5P (UDP-N-acetylglucosamine 2-epimerase)	4-9, 17-24, 32-38, 44-54, 68-82, 89-95, 101-120, 124-131, 136-142, 145-157, 174-181, 184-191, 196-204, 215-224, 228-236, 243-250, 259-266, 274-281, 293-301, 314-319, 325-331, 355-367, 373-378	B:3, F:11	aa 321-341	F:SALAU27(325-337):9/41	208, 227

S. aureus antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF2628	Hypothetical protein	9-15, 28-36, 44-62, 69-88, 98-104, 111-136, 139-149, 177-186, 195-217, 224-236, 241-257, 260-278, 283-290, 292-373, 395-408, 411-443, 465-472, 475-496, 503-520, 552-559, 569-589, 593-599, 607-613, 615-636, 648-654, 659-687, 689-696, 721-733, 738-759, 783-789, 795-801, 811-823, 827-836, 839-851, 867-875, 877-883, 890-898, 900-908, 912-931, 937-951, 961-992, 994-1002, 1005-1011, 1016-1060, 1062-1074, 1088-1096, 1101-1123, 1137-1153, 1169-1192, 1210-1220, 1228-1239, 1242-1251, 1268-1275, 1299-1311, 1322-1330, 1338-1361, 1378-1384, 1393-1412, 1419-1425, 1439-1459, 1469-1482, 1489-1495, 1502-1519, 1527-1544, 1548-1555, 1600-1607, 1609-1617, 1624-1657, 1667-1691, 1705-1723, 1727-1742, 1749-1770, 1773-1787, 1804-1813, 1829-1837, 1846-1852, 1854-1864, 1869-1879, 1881-1896, 1900-1909, 1922-1927, 1929-1935, 1942-1962, 1972-2005, 2009-2029, 2031-2038, 2055-2076, 2101-2114, 2117-2124, 2147-2178, 2188-2202, 2209-2217, 2224-2230, 2255-2266, 2271-2280, 2282-2302, 2307-2316, 2319-2324, 2379-2387	F:6	aa 694-708 aa 790-800 aa 1288-1305	F:SALBD82(1288-1303):9/41	209, 228
ORF2644	PTS system, sucrose-specific IIBC component	8-15, 24-30, 49-68, 80-93, 102-107, 126-147, 149-168, 170-180, 185-193, 241-305, 307-339, 346-355, 358-372, 382-390, 392-415, 418-425, 427-433, 435-444, 450-472	F:4	aa 106-159	F:SALAW60(106-125):3/41	210, 229
ORF2654	Oligopeptide ABC transporter, putative	5-61, 72-84, 87-99, 104-109, 124-145, 158-170, 180-188, 190-216, 223-264, 270-275, 296-336, 355-372	D: 5	aa 182-209	D: n.d.	321, 349
ORF2662	maltose ABC transporter, putative	4-21, 71-79, 99-105, 110-121, 143-161, 199-205, 219-235, 244-258, 265-270, 285-291, 300-308, 310-318, 322-328, 346-351, 355-361, 409-416	F:1	aa 306-323	F:SALBC05(306-323):2/41	211, 230

S. aureus antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF2710	sorbitol dehydrogenase	4-12, 19-40, 61-111, 117-138, 140-153, 161-180, 182-207, 226-235, 237-249, 253-264, 267-274, 277-292, 311-323	B:2, F:4	aa 244-257	F:SALAX93(249-256):6/41	212, 231
ORF2742	Hypothetical protein	4-41, 49-56, 61-67, 75-82, 88-104, 114-125, 129-145, 151-165, 171-178, 187-221, 224-230, 238-250, 252-275, 277-304, 306-385	D: 188, H:4	aa 303 - 323	D: n.d.	322, 350
ORF2780	bmQ	4-29, 41-63, 74-95, 97-103, 107-189, 193-209, 220-248, 260-270, 273-299, 301-326, 328-355, 366-397, 399-428	D: 3	aa 26 - 40	D: n.d.	323, 351
ORF2806	Phage related protein	10-17, 23-29, 31-37, 54-59, 74-81, 102-115, 127-137, 145-152, 158-165, 178-186, 188-196, 203-210, 221-227, 232-237	F:3	aa 104-116	F:SALBC34:1/1	213, 232
ORF2900	Conserved hypothetical protein	4-27, 34-43, 62-73, 81-90, 103-116, 125-136, 180-205, 213-218, 227-235, 238-243, 251-259, 261-269, 275-280, 284-294, 297-308, 312-342, 355-380, 394-408, 433-458, 470-510, 514-536, 542-567	D: 24	aa 360 - 376	D: n.d.	324, 352
ORF2931	conserved hypothetical protein	4-19, 43-54, 56-62, 84-90, 96-102, 127-135, 157-164, 181-187	E:6	aa 22-37	E:GSBZA13(22-37):7/41	214, 233
ORF2958	Exotoxin 2	7-19, 26-39, 44-53, 58-69, 82-88, 91-107, 129-141, 149-155, 165-178, 188-194	F:1	aa 154-168	F:SALBB59(154-168):4/41	215, 234
ORF2970	Surface protein, putative	9-23, 38-43, 55-60, 69-78, 93-101, 103-112, 132-148, 187-193, 201-208, 216-229, 300-312, 327-352, 364-369, 374-383, 390-396, 402-410, 419-426, 463-475, 482-491	H:5	aa 1-70	H:GSBYU66: n.d.	399, 400

**Table 2c: Immunogenic proteins identified by bacterial surface and ribosome display: S. epidermidis.**

Bacterial surface display: A, LSE150 library in fhuA with patient sera 2 (957); B, LSE70 library in lamB with patient sera 2 (1420); C, LSE70 library in lamB with patient sera 1 (551). Ribosome display: D, LSE150 in pMAL4.31 with P2 (1235). \*\*, prediction of antigenic sequences longer than 5 amino acids was performed with the programme ANTIGENIC (Kolaskar and Tongaonkar,

1990). ORF, open reading frame; ARF, alternative reading frame; CRF, reading frame on complementary strand. ORF, open reading frame; CRF, reading frame on complementary strand.

S. <i>epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ARF0172	cation-transporting ATPase, E1-E2 family	4-34, 37-43	D:6	aa3-32	D: nd	497, 548
ARF0183	condensing enzyme, putative, FabH-related	4-22, 24-49	D:4	aa1-52	D: nd	498, 549
ARF2455	NADH dehydrogenase, putative	4-29	D:3	aa1-22	D: nd	499, 550
CRF0001	Unknown	4-14, 16-26	D:3	aa5-21	D: nd	500, 551
CRF0002	Unknown	4-13, 15-23, 36-62	D:5	aa21-70	D: nd	501, 552
CRF0003	Unknown	4-12, 14-28	D:3	aa 4-31	D: nd	502, 553
CRF0004	Unknown	5-15, 35-71, 86-94	D:4	aa31-72	D: nd	503, 554
CRF0005	Unknown	8-26, 28-34	D:3	aa:9-33	D: nd	504, 555
CRF0006	Unknown	4-11, 15-28	D:3	aa10-22	D: nd	505, 556
CRF0007	Unknown	4-19, 30-36	D:3	aa 7-44	D: nd	506, 557
CRF0008	Unknown	10-48	D:4	aa:9-44	D: nd	507, 558
CRF0009	Unknown	41883	D:3	aa5-14	D: nd	508, 559
CRF0192	Putative protein	4-23, 25-68	C:4	aa 15-34	C:GSBBM10(15-34): n.d.	445, 446

S. epidermidis antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
CRF0275	Putative protein	4-40, 49-65	B:5	aa 35-68	B:SELAK28(35-68): n.d.	447, 448
CRF0622	Putative protein	4-12, 17-57, 62-70, 75-84, 86-100	C:4	aa 75-99	C:GSBBR74(76-99): n.d.	449, 450
CRF0879	Putative protein	4-14, 38-44	A:3, B:10	aa 9-40	B:SELAC39(10-40): n.d.	451, 452
CRF1004	Putative protein	4-40	A:3, B:5	aa 29-65	B:SELAI63(35-63): n.d.	453, 454
CRF2248	Putative protein	4-10, 19-40, 53-64, 74-91	C:30	aa 74-111	C:GSBBN64(16-35): n.d.	455, 456
CRF2307	Putative protein	4-19, 35-41, 80-89	A:19	aa 41-87	A:SEFAL47(41-87):n.d.	457, 458
CRF2309	Putative protein	15-21	B:6	aa 4-16	B:SELAL02(4-16): n.d.	459, 460
CRF2409	Putative protein	6-25	B:6	aa 2-24	B:SELAB48(5-24): n.d.	461, 462
ORF0005	hypothetical protein	13-27, 33-67, 73-99, 114-129, 132-158, 167-190, 193-234, 237-267, 269-299, 316-330, 339-351, 359-382, 384-423	D:3	aa105-128	D: nd	509, 560
ORF0008	Streptococcal hemagglutinin	9-14, 16-24, 26-32, 41-50, 71-79, 90-96, 177-184, 232-237, 271-278, 293-301, 322-330, 332-339, 349-354, 375-386, 390-396, 403-409, 453-459, 466-472, 478-486, 504-509, 518-525, 530-541, 546-552, 573-586, 595-600, 603-622, 643-660, 668-673, 675-681, 691-697, 699-711, 713-726, 732-749, 753-759, 798-807, 814-826, 831-841, 846-852, 871-878, 897-904, 921-930, 997-1003, 1026-1031, 1033-1039, 1050-1057, 1069-1075, 1097-1103, 1105-1111, 1134-1139, 1141-1147, 1168-1175, 1177-1183, 1205-1211, 1213-1219, 1231-1237, 1241-1247, 1267-1273, 1304-1309, 1311-1317, 1329-1335, 1339-1345, 1347-1353, 1382-1389, 1401-1407, 1411-1417, 1447-1453, 1455-1461, 1483-1489, 1491-1497, 1527-1533, 1545-1551, 1556-1561, 1581-1587, 1591-1597, 1627-1638, 1661-1667, 1684-1689, 1691-1697, 1708-1715, 1719-1725, 1765-1771, 1813-1820, 1823-1830, 1835-1856	B:2	aa 895-926	B:SELA79(895-926): 7/12	239, 268

S. <i>epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF0038	extracellular elastase precursor	6-25, 29-35, 39-45, 64-71, 82-88, 96-102, 107-113, 119-131, 170-176, 186-192, 196-202, 215-220, 243- 248, 302-312, 345-360, 362-371, 378-384, 458-470, 478-489, 495- 504	C:6	aa 136-165	C:GSBBN08(136-165):1/1	353,359
ORF0099	hypothetical protein	6-18, 31-37, 42-49, 51-67, 73-85, 87-93, 102-109, 119-126, 150-157, 170-179, 185-191, 204-214, 217- 223, 237-248, 269-275, 278-316, 320-340, 359-365	D:5	aa218-265	D: nd	510, 561
ORF0101	hypothetical protein	4-10, 15-27, 67-94, 123-129, 167- 173, 179-184, 187-198, 217-222, 229-235, 238-246	D:18	aa26-109	D: nd	511, 562
ORF0121	C4-dicarboxylate transporter, an- aerobic, putative	4-20, 24-62, 73-86, 89-106, 110- 122, 131-164, 169-193, 204-213, 219-236, 252-259, 263-281, 296- 306, 318-324, 328-352, 356-397, 410-429	D:5	aa323-379	D: nd	512, 563
ORF0143	amino acid per- mease	25-79, 91-103, 105-127, 132-150, 157-174, 184-206, 208-219, 231- 249, 267-294, 310-329, 336-343, 346-405, 417-468	D:35	aa247-339	D: nd	513, 564
ORF0162	Immunodominant Antigen A	4-27, 35-45, 52-68, 83-89, 113-119, 133-150, 158-166, 171-176, 198- 204, 219-230	A:11, B:11; C:153	aa 90-227	B:SELAA19(100-118): 1/1 B:SELAE24(170-190): 11/12	240, 269
ORF0201	capa protein, putative	10-17, 27-53, 81-86, 98-105, 126- 135, 170-176, 182-188, 203-217, 223-232, 246-252, 254-269, 274- 280, 308-314	D:9	aa11-53	D: nd	514, 565
ORF0207	Ribokinase (rbsK)	5-11, 15-23, 47-55, 82-90, 98-103, 108-114, 126-132, 134-156, 161- 186, 191-197, 210-224, 228-235, 239-248, 258-264, 275-290	B:10	aa 20-45	B:SELAQ30 (20-45): 12/12	241, 270
ORF0288	LrgB	7-28, 34-56, 68-119, 127-146, 149- 180, 182-189, 193-200, 211-230	D:4	aa112-149	D: nd	515, 566

S. epidermidis antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF0304	Herpesvirus saimiri ORF73 homolog, putative	8-16, 30-36, 83-106, 116-122, 135-143, 152-165, 177-188, 216-225	D:8	aa69-117	D: nd	516, 567
ORF0340	nitrate transporter	7-21, 24-93, 101-124, 126-139, 141-156, 163-179, 187-199, 202-242, 244-261, 267-308, 313-322, 340-353, 355-376	D:5	aa238-309	D: nd	517, 595
ORF0346	hypothetical protein	8-27, 65-73, 87-93, 95-105	D:8	aa 1-29	D: nd	518, 568
ORF0355	conserved hypothetical protein	5-30, 37-43, 57-66, 85-94, 103-111, 118-125	C:5	aa 63-86	C:GSBBL39(63-86):1/1	354, 360
ORF0356	conserved hypothetical protein	4-14, 21-53, 60-146, 161-173, 175-182, 190-198, 200-211	D:5	aa51-91	D: nd	519, 569
ORF0406	hypothetical protein	12-32, 35-63, 68-102, 106-137, 139-145, 154-168, 173-185, 203-222, 230-259, 357-364, 366-374	D:19	aa1-48, aa69-102	D: nd	520, 570
ORF0425	amino acid permease	40-58, 75-86, 93-110, 117-144, 150-173, 199-219, 229-260, 264-300, 317-323, 329-356, 360-374, 377-390, 392-398, 408-424, 427-452	D:3	aa401-440	D: nd	521, 571
ORF0442	SceB precursor	7-22, 42-48, 55-66, 83-90, 109-118, 136-141	C:38	aa 60-102	C:GSBBM60(65-84):1/1	355, 361
ORF0448	SsaA precursor	6-25, 39-47, 120-125, 127-135, 140-148, 157-168, 200-208, 210-220, 236-243, 245-254	C:170	aa 15-208	C:GSBBN58(81-105):1/1 C:GSBBL13(167-184):1/1 C:GSBBL25(22-45):1/1	356, 362
ORF0503	Ribosomal protein L2	31-39, 48-54, 61-67, 75-83, 90-98, 103-115, 123-145, 160-167, 169-176, 182-193, 195-206, 267-273	A:1, B:3	aa 212-273	B:SELAA47(238-259):12/12	242, 271
ORF0551	Conserved hypothetical protein	5-25, 29-36, 45-53, 62-67, 73-82, 84-91, 99-105, 121-142, 161-177, 187-193, 203-224, 242-251, 266-271, 278-285	A:16, B:9	aa 162-213	B:SELAL12(164-197): 8/12	243, 272
ORF0556	hypothetical protein	4-24, 30-41, 43-68, 82-90, 107-114, 123-143, 155-168	D:3	aa 1-26	D: nd	522, 596



<i>S. epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF0623	Fumble, putative	10-17, 32-38, 55-72, 77-84, 88-96, 126-134, 152-160, 176-185, 190-203, 208-214, 217-225, 233-252, 257-262	A:10, B:12; C:1	aa 95-150	B:SELAB86(95-128): 3/12	244, 273
ORF0740	Hypothetical protein	18-24, 47-61, 69-83, 90-96, 125-132, 140-163, 171-188, 222-249, 281-296, 305-315, 322-330, 335-351, 354-368, 390-397, 411-422, 424-431, 451-469, 479-485, 501-507, 517-524, 539-550, 560-568, 588-599, 619-627, 662-673, 678-689, 735-742, 744-749, 780-786, 797-814, 821-827, 839-847, 857-863, 866-876, 902-911, 919-924, 967-982, 1005-1015, 1020-1026, 1062-1070, 1078-1090, 1125-1131, 1145-1150, 1164-1182, 1208-1213, 1215-1234, 1239-1251, 1256-1270, 1298-1303, 1316-1325, 1339-1349, 1362-1369, 1373-1384, 1418-1427, 1440-1448, 1468-1475, 1523-1532, 1536-1542, 1566-1573, 1575-1593, 1603-1619, 1626-1636, 1657-1667, 1679-1687, 1692-1703, 1711-1718, 1740-1746, 1749-1757, 1760-1769, 1815-1849, 1884-1890, 1905-1914, 1919-1925, 1937-1947, 1955-1963, 1970-1978, 2003-2032, 2075-2089, 2117-2124, 2133-2140, 2146-2151, 2161-2167, 2173-2179, 2184-2196, 2204-2220, 2244-2254, 2259-2264, 2285-2296, 2300-2318, 2328-2334, 2347-2354, 2381-2388, 2396-2408, 2419-2446, 2481-2486, 2493-2500, 2506-2516, 2533-2540, 2555-2567, 2576-2592, 2599-2606, 2615-2639, 2647-2655	B:3	aa 1093-1114	B:SELAB23(1097-1114): 7/12	245, 274
ORF0757	hypothetical protein	13-20, 22-28, 33-40, 60-76, 79-86, 90-102, 112-122, 129-147, 157-170, 178-185, 188-193, 200-205, 218-228, 234-240, 243-250, 265-273, 285-291, 310-316, 330-348, 361-380, 399-405, 427-446, 453-464	C:6	aa 260-284	C:GSBBN01(260-284):1/1	357, 363

<i>S. epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF0912	DNA mismatch repair protein	9-16, 28-39, 47-56, 69-76, 104-121, 124-130, 137-144, 185-195, 199-214, 238-243, 293-307, 317-337, 351-370, 385-390, 411-428, 472-488, 498-516, 518-525, 528-535, 538-545, 553-559, 563-568, 579-588, 592-607, 615-622, 632-638, 641-648, 658-674, 676-705, 709-720, 727-739, 742-750, 753-760, 768-773, 783-788, 811-819, 827-838	A:25	aa 242-304	SEFAT31(242-290): n.d.	441, 442
ORF0923	GTP-binding protein	4-10, 18-27, 42-55, 64-72, 77-92, 114-126, 132-157, 186-196, 206-217, 236-243, 257-280, 287-300, 306-312, 321-328, 338-351, 360-367, 371-382, 385-399	B:13	aa 144-163	B:SELAD55(151-163): 8/12	246, 275
ORF0979	Conserved hypothetical protein	4-28, 44-51, 53-84, 88-107, 113-192	A:9, B:18	aa 12-51	B:SELAH01(26-49):5/12	247, 276
ORF0982	sodium/alanine symporter (alsT)	13-21, 24-50, 73-84, 91-118, 126-133, 142-149, 156-175, 189-249, 251-273, 294-332, 339-347, 358-381, 393-413, 425-448, 458-463	D:3	aa277-305	D: nd	523, 572
ORF1230	Signal peptidase I	6-33, 44-59, 61-69, 74-82, 92-98, 133-146, 163-175	D:14	aa 1-53	D: nd	524, 573
ORF1232	Exonuclease RexA	4-12, 16-32, 36-48, 50-65, 97-127, 136-142, 144-165, 176-190, 196-202, 211-222, 231-238, 245-251, 268-274, 280-286, 305-316, 334-356, 368-376, 395-402, 410-417, 426-440, 443-449, 474-486, 499-508, 510-525, 540-549, 568-576, 608-617, 624-639, 646-661, 672-678, 688-703, 706-717, 727-734, 743-755, 767-773, 783-797, 806-814, 830-839, 853-859, 863-871, 877-895, 899-918, 935-948, 976-990, 998-1007, 1020-1030, 1050-1062, 1070-1077, 1111-1125, 1137-1149, 1153-1160, 1195-1211	B:6	aa 188-219	B:SELAA13(188-216): n.d.	443, 444
ORF1284	permease PerM, putative	10-60, 72-96, 103-109, 127-133, 146-177, 182-189, 196-271, 277-289, 301-319, 323-344, 347-354	D:27	aa55-106	D: nd	525, 574


S. <i>epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF1319	2-oxoglutarate decarboxylase (menD)	9-31, 36-45, 59-67, 71-81, 86-94, 96-107, 111-122, 127-140, 153-168, 180-211, 218-224, 226-251, 256- 270, 272-289, 299-305, 310-323, 334-341, 345-353, 358-364, 369- 379, 384-390, 396-410, 417-423, 429-442, 454-464, 470-477, 497- 505, 540-554	B:5; C:1	aa 400-413	B:SELAF54(404-413): 11/12	248, 277
ORF1326	autolysin AtlE (lytD)	6-25, 40-46, 75-81, 150-155, 200- 205, 237-243, 288-295, 297-306, 308-320, 341-347, 356-363, 384- 391, 417-429, 440-452, 465-473, 481-514, 540-546, 554-560, 565- 577, 585-590, 602-609, 611-617, 625-634, 636-643, 661-668, 676- 684, 718-724, 734-742, 747-754, 766-773, 775-781, 785-798, 800- 807, 825-832, 840-857, 859-879, 886-892, 917-923, 950-956, 972- 978, 987-1002, 1028-1035, 1049- 1065, 1071-1099, 1111-1124, 1150- 1172, 1185-1190, 1196-1207, 1234- 1241, 1261-1271, 1276-1281, 1311- 1320, 1325-1332	B:7; C:5	aa 1282- 1298	B:SELAD20(1282-1298): 10/12	249, 278
ORF1333	quinol oxidase polypeptide iv (ec 1.9.3.-) (quinol oxidase aa3-600, subunit qoxd)	4-27, 33-55, 66-88	D:4	aa 3-93	D: nd	526, 575
ORF1356	hypothetical pro- tein	9-36, 44-67, 74-97, 99-149, 161- 181, 189-198, 211-224, 245-253, 267-273, 285-290, 303-324, 342- 394, 396-427	D:32	aa54-95	D: nd	527, 597
ORF1373	dihydrolipoamide acetyltransferase	33-39, 42-78, 103-109, 126-136, 184-191, 225-232, 258-279, 287- 294, 306-315, 329-334, 362-379, 381-404, 425-430	A:3, B:1	aa 124-188	A:SEFAP57(124-188): 2/12	250, 279
ORF1381	hypothetical pro- tein	21-45, 62-67, 74-106, 108-142, 154-160, 230-236, 245-251, 298- 305	D:5	aa7-44	D: nd	528, 576

S. <i>epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF1420	Muts2 protein, putative	8-32, 34-41, 46-55, 70-76, 81-89, 97-115, 140-148, 153-159, 165-171, 175-188, 207-239, 256-276, 280- 289, 297-319, 321-335, 341-347, 352-360, 364-371, 384-411, 420- 440, 449-460, 495-502, 505-516, 560-566, 573-588, 598-605, 607- 614, 616-624, 674-694, 702-717	B:7	aa 581-608	B:SELAM40(581-604): 9/12	251, 280
ORF1443	cell division protein (divIB)	61-66, 111-117, 148-155, 173-182, 194-224, 263-293, 297-303, 313- 321, 334-343, 345-356, 375-381, 384-395, 408-429, 448-454	D:4	aa175-229	D: nd	529, 577
ORF1500	Cell division pro- tein FtsY	100-107, 154-167, 182-193, 200- 206, 223-231, 233-243, 249-257, 265-273, 298-310, 326-336, 343- 362, 370-384	A:2, B:3	aa 77-182	B:SELAP37(139-162): 9/12	252, 281
ORF1665	amino acid ABC transporter, permease protein	4-25, 44-55, 66-76, 82-90, 93-99, 104-109, 176-209, 227-242, 276- 283, 287-328, 331-345, 347-376, 400-407, 409-416, 418-438, 441- 474	D:5	aa 1-52	D: nd	530, 578
ORF1707	putative host cell surface-exposed lipoprotein	12-31, 40-69, 129-137, 140-151, 163-171, 195-202, 213-218	D:4	aa 20-76	D: nd	531, 598
ORF1786	D-3- phosphoglycerate dehydrogenase, putative	4-10, 16-32, 45-55, 66-78, 87-95, 103-115, 118-124, 135-150, 154- 161, 166-174, 182-193, 197-207, 225-231, 252-261, 266-304, 310- 315, 339-347, 351-359, 387-402, 411-423, 429-436, 439-450, 454- 464, 498-505, 508-515	D:5	aa400-442	D: nd	532, 579
ORF1849	yhjN protein	8-51, 53-69, 73-79, 85-132, 139- 146, 148-167, 179-205, 212-224, 231-257, 264-293, 298-304, 309- 317, 322-351	D:5	aa254-301	D: nd	533, 580

S. epidermidis antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF1877	protein-export membrane protein SecD (secD-1)	6-19, 26-39, 41-51, 59-67, 72-85, 91-98, 104-111, 120-126, 147-153, 158-164, 171-178, 199-209, 211-218, 233-249, 251-257, 269-329, 362-368, 370-385, 392-420, 424-432, 454-489, 506-523, 534-539, 550-556, 563-573, 576-596, 603-642, 644-651, 655-666, 685-704, 706-733, 747-753	D:7	aa367-409	D: nd	534, 581
ORF1912	unknown conserved protein (conserved)	23-35, 37-70, 75-84, 90-112, 129-135, 137-151, 155-180, 183-209, 211-217, 219-225, 230-248, 250-269, 274-284, 289-320, 325-353, 357-371, 374-380, 384-399, 401-411,	D:4	aa131-187	D: nd	535, 582
ORF2015	Trehalose-6-phosphate hydrolase	8-17, 30-54, 82-89, 94-103, 157-166, 178-183, 196-204, 212-219, 222-227, 282-289, 297-307, 345-364, 380-393, 399-405, 434-439, 443-449, 453-475, 486-492, 498-507, 512-535, 538-548	A:3, B:8	aa 465-498	B:SELAH62(465-498): 5/12	253, 282
ORF2018	Glucose-6-phosphate 1-DH	4-16, 21-27, 39-51, 60-69, 76-83, 97-118, 126-132, 159-167, 171-177, 192-204, 226-240, 247-259, 281-286, 294-305, 314-320, 330-338, 353-361, 367-372, 382-392, 401-413, 427-434, 441-447, 457-463	B:17	aa 250-287	B:SELA119(250-279): 3/12	254, 283
ORF2040	LysM domain protein protein	51-56, 98-108, 128-135, 138-144, 152-158, 177-192, 217-222, 232-251, 283-305, 406-431, 433-439	D:23	aa259-331	D: nd	536, 583
ORF2098	PilB related protein	13-18, 36-43, 45-50, 73-79, 95-100, 111-126, 133-139	A:60	aa 1-57	A:SEFAQ50(15-57): 5/12	255, 284
ORF2139	sodium:sulfate symporter family protein, putative	7-12, 22-97, 105-112, 121-128, 130-146, 152-164, 169-189, 192-203, 211-230, 238-246, 260-281, 304-309, 313-325, 327-357, 367-386, 398-444, 447-476, 491-512	D:41	aa42-118	D: nd	537, 584

S. epidermidis antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF2172	SceB precursor (lytE)	4-23, 28-34, 38-43, 45-51, 63-71, 85-96, 98-112, 118-126, 167-174, 179-185, 219-228, 234-239, 256-263	A:438, B:40, D:4	aa 6-215	B:SELAH53(188-209): 3/12	256, 285
ORF2200	zinc ABC transporter, permease protein, putative	4-31, 33-40, 48-64, 66-82, 92-114, 118-133, 137-159, 173-246, 248-266	D:19	aa162-225	D: nd	538, 585
ORF2248	membrane protein, MmpL family, putative	4-11, 17-34, 72-78, 127-137, 178-227, 229-255, 262-334, 352-380, 397-405, 413-419, 447-454, 462-467, 478-490, 503-509, 517-558, 560-568, 571-576, 582-609, 623-629, 631-654, 659-710, 741-746, 762-767, 771-777, 788-793, 856-867	D:17	aa1-59, aa159-225, aa634-674	D: nd	539, 586
ORF2260	Unknown conserved protein in others	5-10, 18-29, 31-37, 66-178, 196-204, 206-213	B:4	aa 123-142	B:SELAG77(123-142): 12/12	257, 286
ORF2282	conserved hypothetical protein	16-22, 41-50, 52-64, 66-74, 89-95, 107-114, 123-130, 135-159, 167-181, 193-199, 223-231, 249-264, 279-289	A:4	aa 51-97	A:SEFAR88(51-97): 3/12	258, 287
ORF2376	DivIC homolog, putative	27-56, 102-107, 111-116	D:7	aa15-58	D: nd	540, 587
ORF2439	membrane-bound lytic murein transglycosidase D, putative	4-9, 11-26, 36-56, 59-73, 83-100, 116-130, 148-163, 179-193, 264-270, 277-287, 311-321	A:459, B:2, D:53	aa 10-217	B:SELAC31(75-129): 12/12	259, 288
ORF2493	conserved hypothetical protein	4-29, 37-77, 80-119	D:6	aa69-113	D: nd	541, 588
ORF2535	ATP-binding cassette transporter-like protein, putative	5-28, 71-81, 101-107, 128-135, 146-52, 178-188, 209-214, 224-233, 279-294, 300-306, 318-325, 342-347, 351-357	D:8	aa1-65	D: nd	542, 589

<i>S. epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno-genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF2627	cation-transporting ATPase, E1-E2 family, putative	8-31, 34-80, 125-132, 143-153, 159-165, 176-189, 193-198, 200-206, 215-242, 244-262, 264-273, 281-289, 292-304, 318-325, 327-338, 347-371, 404-416, 422-429, 432-450, 480-488, 503-508, 517-525, 539-544, 551-562, 574-587, 600-631, 645-670	D:3	aa61-105	D: nd	543, 590
ORF2635	Hypothetical protein	4-10, 17-24, 26-42, 61-71, 90-96, 102-111, 117-125, 158-164, 173-182, 193-201, 241-255, 268-283, 289-298, 305-319, 340-353, 360-376, 384-390, 394-406	A:2, B:2	aa 139-169	B:SELAB63(138-163): 7/12	260, 289
ORF2669	Hypothetical protein	4-21, 35-42, 85-90, 99-105, 120-125, 148-155, 175-185, 190-196, 205-210, 217-225	A:14, B:8	aa 22-81	B:SELAE27(22-51): 5/12	261, 290
ORF2671	Hypothetical protein	4-23, 43-49, 73-84, 93-98, 107-113, 156-163, 179-190, 197-204, 208-218, 225-231, 248-255	A:44, B:14	aa 23-68	B:SELAD21(36-61): 5/12	262, 291
ORF2673	Hypothetical protein	4-20, 65-71, 99-105, 148-155, 171-182, 190-196, 204-210, 221-228, 240-246	A:16, B:3	aa 23-68	B:SELAE25(23-54): 2/12	263, 292
ORF2694	Hypothetical protein	4-26, 93-98, 121-132, 156-163, 179-192, 198-204, 212-220, 225-238	A:19, B:30	aa 25-82	B:SELAB26(27-60): 5/12	264, 293
ORF2695	Hypothetical protein	4-26, 43-50, 93-98, 107-113, 156-163, 179-190, 198-204, 212-218, 225-231, 247-254	A:7	aa 22-78	A:SEFAH77(22-66): 6/12	265, 294
ORF2719	two-component sensor histidine kinase, putative	5-52, 60-71, 75-84, 91-109, 127-135, 141-156, 163-177, 185-193, 201-214, 222-243, 256-262, 270-279, 287-293, 298-303, 321-328, 334-384, 390-404, 411-418, 427-435, 438-448, 453-479, 481-498, 503-509	B:4	aa 123-132	B:SELAA62(123-132): 6/12	266, 295
ORF2728	Accumulation-associated protein	4-13, 36-44, 76-86, 122-141, 164-172, 204-214, 235-242, 250-269, 291-299, 331-337, 362-369, 377-396, 419-427, 459-469, 505-524, 547-555, 587-597, 618-625, 633-652, 675-683, 715-727, 740-753, 761-780, 803-811, 842-853, 962-968, 1006-1020	A:265, B:448; C:4, D:9	aa 803-1001	B:SELAA10(850-878): 11/12	267, 296

S. <i>epidermidis</i> antigenic protein	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immuno- genic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
ORF2740	lipase precursor 	4-21, 190-200, 218-228, 233-241, 243-261, 276-297, 303-312, 316- 325, 346-352, 381-387, 436-442, 457-462, 495-505, 518-532, 543- 557, 574-593	C:3	aa 110-177	C:GSBBL80(110-177):1/1	358, 364
ORF2764	oligopeptide ABC transporter, per- mease protein, putative	14-36, 62-131, 137-147, 149-162, 164-174, 181-207, 212-222, 248- 268, 279-285	D:4	aa 6-41	D: nd	544, 591
ORF2767	unknown con- served protein in others	7-20, 22-35, 40-50, 52-61, 63-92, 94-101, 103-126, 129-155, 161-178, 192-198, 200-208, 210-229, 232- 241, 246-273, 279-332, 338-359, 369-383	D:4	aa276-316	D: nd	545, 592
ORF2809	sodium:sulfate symporter family protein	4-29, 37-53, 56-82, 87-100, 108- 117, 121-138, 150-160, 175-180, 189-195, 202-214, 220-247, 269- 315, 324-337, 341-355, 361-412, 414-423, 425-440, 447-467	D:9	aa266-317, aa357-401	D: nd	546, 593
ORF2851	putative trans- membrane efflux protein	7-13, 20-32, 37-90, 93-103, 107- 126, 129-155, 159-173, 178-189, 195-221, 234-247, 249-255, 268- 303, 308-379	D:11	aa137-185	D: nd	547, 594



**Table 2d: Immunogenic proteins identified by bacterial surface and ribosome display: *S. aureus* (new annotation)**

Bacterial surface display: A, LSA250/1 library in fhuA with patient sera 1 (655); B, LSA50/6 library in lamB with patient sera 1 (484); C, LSA250/1 library in fhuA with IC sera 1 (571); E, LSA50/6 library in lamB with IC sera 2 (454); F, LSA50/6 library in lamB with patient sera P1 (1105); G, LSA50/6 library in lamB with IC sera 1 (471). Ribosome display: D, LSA250/1 library with IC sera (1686). \*\*, prediction of antigenic sequences longer than 5 amino acids was performed with the programme ANTIGENIC (Kolkar and Tongaonkar, 1990); #, identical sequence present twice in ORF.

<i>S. aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of selected clones per ORF and screen	Location of identified immunogenic region	Serum reactivity with relevant region (positive/total)	Seq ID no: (DNA +Prot)
SaA0003	ORF2967 & ORF2963	repC	7-19, 46-57, 85-91, 110-117, 125-133, 140-149, 156-163, 198-204, 236-251, 269-275, 283-290, 318-323, 347-363	B:3, C:14; F:29	aa 9-42 aa 156-241 aa 300-314 aa 343-420	C:GSBYI53(9-42):1/1 C:GSBYG39(156-241):1/1 C:GSBYM94(343-420):26/30	394, 396
ORF0123	ORF1909 - 18 aa at N-terminus	unknown	4-10, 25-30, 38-57, 91-108, 110-123, 125-144, 146-177, 179-198, 216-224, 226-233	B:3, E:7, G:1	aa 145-163	B:GSBXF80(150-163):5/27 E:GSBZC17(150-163):25/41	409, 410
ORF0160	ORF1941 - 16 aa at N-terminus	unknown	4-26, 34-70, 72-82, 86-155, 160-166, 173-205, 207-228, 230-252, 260-268, 280-313	A:1	aa 96-172	A:GSBXO07(96-172):5/30	411, 412
ORF0657	ORF unknown	LPXTGVI protein	9-33, 56-62, 75-84, 99-105, 122-127, 163-180, 186-192, 206-228, 233-240, 254-262, 275-283, 289-296, 322-330, 348-355, 416-424, 426-438, 441-452, 484-491, 541-549, 563-569, 578-584, 624-641	A:2, B:27, F:15	aa 526-544	B:GSBXE07-bdb1(527-542):11/71 F:SALAX70(526-544):11/41	413, 414
ORF1050	ORF1307 - 4 aa at N-terminus	unknown	45-68, 72-79, 91-101, 131-142, 144-160, 179-201	A:1, H:45	aa 53-124	A:GSBXM26(53-124):7/30	415, 416
ORF1344	ORF0212 - 10 aa at N-terminus	NifS protein homolog	13-26, 40-49, 61-68, 92-112, 114-123, 138-152, 154-183, 194-200, 207-225, 229-240, 259-265, 271-284, 289-309, 319-324, 330-336, 346-352, 363-372	A:11	aa 24-84	A:GSBXXK59-bmd21(24-84):6/29	417, 418

S. <i>aureus</i> antigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic re- gion	Serum reactivity with rele- vant region (positive/total)	Seq ID no: (DNA +Prot)
ORF1632	ORF1163 -4 aa at N- terminus	SdrH homolog	4-31, 50-55, 243-257, 259-268, 298-316, 326-335, 364-370, 378- 407	B:6, E:11, F:34	aa 101-115 aa 115-139 aa 158-186	B:GSBXG53(164-182):39/71 F:SALAP07(101-115):11/41	419, 420
ORF2180	ORF0594 - 2 aa at N- terminus	LPXTGIV protein	9-17, 24-45, 67-73, 82-90, 100-107, 117-134, 137-145, 158-168, 176- 183, 188-194, 206-213, 223-231, 243-248, 263-270, 275-282, 298- 304, 344-355, 371-377, 382-388, 427-433, 469-479, 500-505, 534- 559, 597-607, 662-687, 790-815, 918-943, 1032-1037, 1046-1060, 1104-1112, 1128-1137, 1179-1184, 1197-1204, 1209-1214, 1221-1239	A:3, C:3, E:6, F:2, H:6	aa 491-587 aa 633-715 aa 702- 757* aa 758-830 (aa 830- 885)*	A:GSBXS61(491-555):1/1 A:GSBXL64(494-585):1/1 A:GSBXS92(758-841):1/1 A:bmd4(702-757):16/30* (A:bmd4(830-885):16/30)* F:SALBC43(519-533):4/41	421, 422
ORF2184	ORF0590 - 8 aa at N-termi- nus	FnbpB	10-29, 96-116, 131-137, 146-158, 167-173, 177-182, 185-191, 195- 201, 227-236, 260-266, 270-284, 291-299, 301-312, 348-356, 367- 376, 382-396, 422-432, 442-453, 480-487, 497-503, 519-527, 543- 548, 559-565, 579-585, 591-601, 616-623, 643-648, 657-663, 706- 718, 746-758, 791-796, 810-817, 819-825, 833-839, 847-853, 868- 885, 887-895, 919-932	A:2, C:4, G:9	aa 694-769 aa 774-847	A:GSBXM62(694-769):28/28 A:GSBXR22(774-847):1/1	423, 424
ORF2470	ORF0299 - 14 aa at N- terminus	Conserved hy- pothetical protein	4-27, 36-42, 49-55, 68-73, 94-101, 131-137, 193-200, 230-235, 270- 276, 294-302, 309-324, 334-344, 347-364, 396-405, 431-437, 498- 508, 513-519, 526-532, 539-544, 547-561, 587-594, 618-630, 642- 653, 687-699, 713-719, 752-766	C:3	aa 400-441	C:GSBYH60(400-441):28/31	425, 426
ORF2498	ORF0267 ORF app. 580 aa longer at N termi- nus; plus other changes	Conserved hy- pothetical protein	8-19, 21-44, 63-76, 86-92, 281-286, 303-322, 327-338, 344-354, 364- 373, 379-394, 405-412, 453-460, 501-506, 512-518, 526-542, 560- 570, 577-583, 585-604, 622-630, 645-673, 677-691, 702-715, 727- 741, 748-753, 770-785, 789-796, 851-858, 863-869, 876-881, 898- 913, 917-924, 979-986, 991-997, 1004-1009, 1026-1041, 1045-1052, 1107-1114, 1119-1125, 1132-1137, 1154-1169, 1173-1192, 1198-1204, 1240-1254, 1267-1274, 1290-1298, 1612-1627	D:12, F:6	aa 358-411 aa 588-606 aa 895-909	D:17/21 F:SALAT38(895-909):8/41	427, 428

S. <i>aureus</i> an tigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic re- gion	Serum reactivity with rele- vant region (positive/total)	Seq ID no: (DNA +Prot)
ORF2548	ORF2711 -12 aa at N- terminus	IgG binding protein A	4-37, 44-53, 65-71, 75-82, 105-112, 126-132, 136-143, 164-170, 184- 190, 194-201, 222-232, 242-248, 252-259, 280-291, 300-317, 413- 420, 452-460, 485-503	A:55, B:54, C:35, F:59, G:56, H:38	aa 1-123 aa 207-273 aa 310-410	A:GSBXXK68(1-73):21/30 A:GSBXXK41(35-123):1/1 A:GSBXN38(207-273):19/30 A:GSBXL11(310-363):10/30 B:GSBXXB22(394-406):37/71 F:SALAM17(394-406):29/41	429, 430
ORF2746	ORF2507 - 3 aa at N- terminus	homology with ORF1	4-9, 12-17, 40-46, 91-103, 106-113, 116-125, 150-160, 172-177, 182- 188, 195-206, 241-261, 263-270, 277-285, 287-294	A:1, H:13	aa 63-126	A:GSBXO40(66-123):8/29	431, 432
ORF2797	ORF2470 -24 aa at N-termi- nus	unknown	13-32, 40-75, 82-95, 97-112, 115- 121, 124-154, 166-192, 201-225, 227-252, 268-273, 288-297, 308- 375, 379-434	B:3, E:2, F:13, H:3	aa 159-176 aa 325-339	B:GSBXE85(159-176):11/27 F:SALAQ47(159-176):8/41	433, 434
ORF2960	ORF2298 - 5 aa at N- terminus	putative Exotoxin	8-31, 35-44, 106-113, 129-135, 154-159, 168-178, 203-215, 227- 236, 240-249, 257-266, 275-281, 290-296, 298-305, 314-319, 327- 334	C:101, E:2, H:58	aa 1-80 aa 48-121 aa 98-190	C:GSBYG32(1-80)::6/7 C:GSBYG61-bhe2(48- 116):26/30 C:GSBYN80(98-190):13/17	435, 436
ORF2963	ORF2295 -5 aa at N- terminus	putative Exotoxin	8-23, 35-41, 64-70, 81-87, 109-115, 121-132, 150-167, 177-188, 194- 201, 208-216, 227-233, 238-248, 265-271, 279-285	C:3, E:3, G:1	aa 17-95	C:GSBYJ58(17-95):9/15	437, 438

S. aureusan tigenic protein	Old ORF number	Putative function (by homology)	predicted immunogenic aa**	No. of se- lected clones per ORF and screen	Location of identified immuno- genic re- gion	Serum reactivity with rele- vant region (positive/total)	Seq ID no: (DNA +Prot)
ORF3200	ORF1331 +8506 aa at N- terminus	putative extracellular matrix binding protein	8-32, 45-52, 92-103, 154-159, 162-168, 207-214, 232-248, 274-280, 297-303, 343-349, 362-375, 425-442, 477-487, 493-498, 505-512, 522-533, 543-550, 558-564, 568-574, 580-600, 618-630, 647-652, 658-672, 692-705, 711-727, 765-771, 788-798, 812-836, 847-858, 870-898, 903-910, 1005-1015, 1018-1025, 1028-1036, 1058-1069, 1075-1080, 1095-1109, 1111-1117, 1119-1133, 1166-1172, 1183-1194, 1200-1205, 1215-1222, 1248-1254, 1274-1280, 1307-1317, 1334-1340, 1381-1391, 1414-1420, 1429-1439, 1445-1467, 1478-1495, 1499-1505, 1519-1528, 1538-1550, 1557-1562, 1572-1583, 1593-1599, 1654-1662, 1668-1692, 1701-1707, 1718-1724, 1738-1746, 1757-1783, 1786-1793, 1806-1812, 1815-1829, 1838-1848, 1853-1860, 1875-1881, 1887-1893, 1899-1908, 1933-1940, 1952-1961, 1964-1970, 1977-1983, 1990-1996, 2011-2018, 2025-2038, 2086-2101, 2103-2117, 2177-2191, 2195-2213, 2220-2225, 4*2237-2249, 2273-2279, 2298-2305, 2319-2327, 2349-2354, 2375-2381, 2391-2398, 2426-2433, 2436-2444, 2449-2454, 2463-2469, 2493-2499, 2574-2589, 2593-2599, 2605-2611, 2615-2624, 2670-2684, 2687-2698, 2720-2727, 2734-2754, 2762-2774, 2846-2866, 2903-2923, 2950-2956, 2985-2998, 3011-3031, 3057-3064, 2*3102-3117, 3137-3143, 3186-3195, 3211-3219, 3255-3270, 3290-3300, 3327-3334, 3337-3343, 3390-3396, 3412-3419, 3439-3446, 3465-3470, 3492-3500, 3504-3510, 3565-3573, 3642-3650, 3691-3698, 3766-3775, 3777-3788, 3822-3828, 3837-3847, 3859-3864, 3868-3879, 3895-3902, 3943-3951, 3963-3971, 3991-3997, 4018-4030, 4054-4060, 4074-4099, 4123-4129, 4147-4153, 4195-4201, 4250-4255, 4262-4267, 4270-4277, 4303-4310,	A:11, B:11, C:36, H:32	aa 8543-8601 aa 8461-8475	A:GSBXL07(8543-8601):6/28	439, 440

4321-4330, 4343-4352, 4396-4408,  
4446-4451, 4471-4481, 4503-4509,  
4516-4534, 4596-4604, 4638-4658,  
4698-4710, 4719-4732, 4776-4783,  
4825-4833, 4851-4862, 4882-4888,  
4894-4909, 4937-4942, 5047-5054,  
5094-5100, 5102-5112, 5120-5125,  
5146-5153, 5155-5164, 5203-5214,  
5226-5236, 5278-5284, 5315-5321,  
5328-5342, 5348-5359, 5410-5420,  
5454-5466, 5481-5489, 5522-5538,  
5597-5602, 5607-5614, 0"5623-  
5629, 5650-5665, 5707-5719, 5734-  
5742, 5772-5778, 5785-5790, 5833-  
5845, 5857-5863, 5899-5904, 5908-  
5921, 5959-5971, 5981-5989, 6010-  
6017, 6034-6043, 6058-6064, 6112-  
6120, 6154-6169, 6210-6217, 6231-  
6240, 6261-6268, 6288-6294, 6318-  
6324, 6340-6349, 6358-6369, 6402-  
6407, 6433-6438, 6483-6493, 6513-  
6519, 6527-6546, 6561-6574, 6599-  
6608, 6610-6616, 6662-6673, 6696-  
6705, 6729-6743, 6769-6775, 6792-  
6801, 6819-6828, 6840-6846, 6860-  
6870, 6915-6928, 6966-6972, 7021-  
7028, 7032-7047, 7096-7101, 7109-  
7117, 7138-7149, 7157-7162, 7201-  
7206, 7238-7253, 7283-7294, 7296-  
7302, 7344-7365, 7367-7376, 7389-  
7404, 7413-7433, 7475-7482, 7493-  
7500, 7535-7549, 7596-7608, 7646-  
7651, 7661-7678, 7722-7731, 7741-  
7754, 7764-7769, 7776-7782, 7791-  
7806, 7825-7837, 7862-7875, 7891-  
7897, 7922-7931, 7974-7981, 7999-  
8005, 8039-8045, 8049-8065, 8070-  
8075, 8099-8112, 8119-8125, 8151-  
8158, 8169-8181, 8226-8232, 8258-  
8264, 8291-8299, 8301-8310, 8325-  
8335, 8375-8389, 8394-8400, 8405-  
8412, 8421-8436, 8478-8485, 8512-  
8521, 8528-8538, 8564-8579, 8587-  
8594, 8603-8615, 8626-8637, 8640-  
8646, 8657-8672, 8684-8691, 8725-  
8736, 8748-8761, 8777-8783, 8794-  
8799, 8810-8825, 8851-8862, 8874-  
8887, 8903-8912, 8914-8926, 8933-  
8943, 8954-8960, 8979-8988, 9004-  
9011, 9035-9041, 9056-9069, 9077-  
9086, 9088-9096, 9106-9111, 9124-  
9133, 9183-9191, 9224-9231, 9235-  
9241, 9250-9265, 9279-9290, 9295-

		9300, 9326-9343, 9408-9414, 9422- 9427, 9435-9441, 9455-9461, 9507- 9517, 9532-9538, 9580-9589, 9594- 9600, 9614-9623, 9643-9648, 9665- 9683, 9688-9700, 9720-9726, 9742- 9758, 9767-9775, 9795-9800, 9817- 9835, 9842-9847, 9912-9919, 9925- 9938, 9943-9963, 9970-10009, 10025-10031, 10037-10043, 10045- 10063, 10066-10073, 10117-10124, 10126-10136, 10203-10210, 10218- 10225, 10232-10242, 10287-10292, 10303-10323, 10352-10360, 10385- 10396, 10425-10431, 10452-10459, 10480-10485			
--	--	--	--	--	--

**Table 3. Serological proteome analysis of *S. aureus* surface proteins using human sera**

**a) *S. aureus*/agr "stress conditions"**

Spot ID/sera	IC40 1:20,000	IC35, N26, C4 1:50,000 each	Infant pool C2,5,6,10,12 1:10,000	N22 1:10.000 IC40 1:50,000
PCK2	+	+	-	+
PCK4	+	+++	-	+++
PCK5	-	(+)	-	+
PCK6	+	+	-	+

Spot ID/sera	IC35, 40 1:50,000 N22 1:10,000	P-pool (P6,18,25,28,29) 1:50,000 each	Infant pool C2,5,6,10,12 1:10,000	
PAC1	++	++	-	
PAC2	++	+++	-	
PAC3	-	+	-	
PAC5	-	++	-	

Spot ID/sera	P-pool (P6,18,25,28,29) 1:50,000 each	Infant 14 1:10,000	IC pool / IgG (N26, IC34,35) 1:30,000 each	IC pool / IgA (N26, IC34,35) 1:30,000 each
PAC11	++	-	++	++
PAC12	++	-	++	++
PAC13	-	-	-	++
PAC14	-	-	+	+
PAC15	-	-	+++	+++
PAC16	+	-	+	+
PAC17	+	-	+	+
PAC18	++	-	-	-
PAC19	-	-	++	++
PAC20	++	-	-	-
POV31	+++	-	-	-
POV32	+	-	-	-
POV33	+	-	-	-
POV34	+	-	-	-
POV35	+	-	-	-
P OV36	+	-	-	-
P OV37	++	-	-	-

P OV38	++	-	-	-
P OV39	+++	-	-	-
P OV40	+++	-	-	-

b) *S. aureus*/COL "standard conditions"

Spot ID/sera	IC pool (N26,IC34,35) 1:30,000 each	IC35 1:20,000	P18 1:10,000	P25 1:10,000	P1 1:5,000	P29 1:2,500	Infant 18 1:10,000
POV2	+++	+++	+++	+++	+++	-	-
POV3.1	+++	+++	+++	+++	+++	-	-
POV3.2	+++	+++	+++	+++	+++	-	-
POV4	+	+++	-	-	-	-	-
POV7	-	-	+++	-	-	-	-
POV10	-	++	(+)	(+)	-	(+)	-
POV12	-	-	-	-	-	+++	-
POV13	++	+++	+++	+++	++	++	-
POV14	++	+++	+++	++	++	++	-
POV15	+	+	-	+	(+)	-	-

c) *S. aureus*/COL "stress conditions"

Spot ID/sera	P-pool (P6,18,25,28,29) 1:50,000 each	IC34+IC35 1:20,000 each	P18 1:10,000	P29 1:10,000	Infant 14 1:10,000
POV16	-	+++	-	-	-
POV17	-	+++	(+)	-	-
POV18	+	-	++	-	-
POV19	(+)	-	+++	-	-
POV21	-	-	+	-	-
POV23	-	+	-	-	-
POV24	-	+	-	-	-
POV25	+	-	-	-	-



**Table 4. *S. aureus* antigens identified by MALDI-TOF-MS sequencing (ORFs in bold were also identified by bacterial surface display)**

**Prediction of antigenic regions in selected antigens identified by serological proteome analysis using human sera**

spot ID	<i>S. aureus</i> protein (ORF no. / abbrev.)	Putative function (by homology)	Seq ID no: (DNA, Prot)	Putative localization
PCK2	ORF0599	Glycinamide-ribosyl synthase	107, 108	cytoplasmic
PCK5	ORF0484 yitU	conserved hypoth. protein (yitU)	109, 110	cytoplasmic
PCK6	ORF2309 mqo	membrane-associated malate-quinone oxidase	111, 112	peripheral membrane
POV2	ORF0766 aux1	protein phosphatase contributing to methicillin resistance	113, 114	trans-membrane
POV4, 17 PAC14, 19	ORF0078 EF-Tu	C-terminal part of 44 kDa protein similar to elongation factor Tu	115, 116	cytoplasmic/ secreted
POV5 <sup>1)</sup>	ORF0782	3-ketoacyl-acyl carrier protein reductase (fabG)	117, 118	cytoplasmic
POV7	<b>ORF0317</b> SecA	protein transport across the membrane SecA	39, 91	cytoplasmic
POV10	ORF1252 yrzC	hypothetical BACSU 11.9 kd protein (upf0074 (rff2) family)	119, 120	cytoplasmic
POV12	ORF0621 pdhB	dihydrolipoamide acetyltransferase (pdhB)	121, 122	cytoplasmic
POV14	ORF0072 rpoB	DNA-directed RNA polymerase $\beta$	125, 126	cytoplasmic
POV15	ORF0077 EF-G	85 kD vitronectin binding protein	127, 128	cytoplasmic
POV18	not found YLY1	general stress protein YLY1	129, 130	cytoplasmic
POV30 <sup>1)</sup>	ORF0069 RL7	ribosomal protein L7	131, 132	cytoplasmic
POV21	ORF0103 yckG	probable hexulose-6-phosphate synthase (yckG)	133, 134	cytoplasmic
POV24	ORF0419 yurX	conserved hypothetical protein (yurX)	137, 138	cytoplasmic

spot ID	S. aureus protein (ORF no. / abbrev.)	Putative function (by homology)	Seq ID no: (DNA, Prot)	Putative localization
POV25	ORF2441 gidA	glucose inhibited division protein a (gidA)	139, 140	cytoplasmic
PAC1	ORF1490 prsA	protein export protein prsA precursor (prsA)	173, 174	periplasmic
PAC2	ORF1931 ModA	periplasmic molybdate binding protein (ModA)	175, 176	surface
PAC3	ORF2053	heavy metal dependent transcriptional activator, putative regulator of multidrug resistance efflux pump pmrA	177, 178	cytoplasmic
PAC5	ORF2233 ydaP	pyruvate oxidase (ydaP)	179, 180	cytoplasmic
PAC11	ORF1361	LPXTGV, extracellularmatrix-bdg.	3, 56	surface
PAC12	ORF1244 alaS	alanyl-tRNA synthetase	159, 160	cytoplasmic
PAC13	ORF0835 ymfA	RNA processing enzyme/ATP-bdg.	161, 162	cytoplasmic
PAC15	ORF1124 bfmBB	lipoamid acyltransferase component of branched-chain alpha-keto acid dehydrogenase complex	163, 164	cytoplasmic
PAC16	ORF0340 GAPDH	glyceraldehydes-3-phosphate dehydrogenase	165, 166	cytoplasmic
PAC17	not found Contig83	5'-methylthioadenosine nucleosidase / S-adenosylhomo-cysteine nucleosidase		cytoplasmic
PAC20	ORF2711	75% identity to ORF2715 similar to hypothetical proteins	167, 168	unknown
POV31	ORF0659	29 kDa surface protein	236, 238	surface
POV32	ORF0659	29 kDa surface protein	236, 238	surface
POV33	ORF0659	29 kDa surface protein	236, 238	surface
POV34	ORF0659	29 kDa surface protein	236, 238	surface
POV35	ORF0659	29 kDa surface protein	236, 238	surface
P OV36	ORF00661	LPXTG-motif cell wall anchor domain protein	235, 237	surface
P OV37	ORF0659	29 kDa surface protein	236, 238	surface

spot ID	S. aureus protein (ORF no. / abbrev.)	Putative function (by homology)	Seq ID no: (DNA, Prot)	Putative localization
P OV38	ORF0659	29 kDa surface protein	236, 238	surface
P OV39	ORF0657	LPXTG-anchored surface protein	1, 142	surface
P OV40	not identified			

Seq ID no: (Protein)	spot ID	S. aureus ORF no. / abbrev.	Putative localization	Putative antigenic surface areas (Antigenic package)
112	PCK6	ORF2309 mqo	peripheral membrane	61-75, 82-87, 97-104, 113-123, 128-133, 203-216, 224-229, 236-246, 251-258, 271- 286, 288-294, 301-310, 316-329, 337-346, 348-371, 394-406, 418-435, 440-452
114	POV2	ORF766 aux1	trans-mem- brane	30-37, 44-55, 83-91, 101-118, 121-128, 136-149, 175-183, 185-193, 206-212, 222- 229, 235-242
116	POV4	ORF078 EF-Tu	cytoplasmic/ secreted	28-38, 76-91, 102-109, 118-141, 146-153, 155-161, 165-179, 186-202, 215-221, 234- 249, 262-269, 276-282, 289-302, 306-314, 321-326, 338-345, 360-369, 385-391
176	PAC2	ORF1931 ModA	periplasmic	29-44, 74-83, 105-113, 119-125, 130-148, 155-175, 182-190, 198-211, 238-245
174	PAC1	ORF1490 prsA	periplasmic	5-24, 38-44, 100-106, 118-130, 144-154, 204-210, 218-223, 228-243, 257-264, 266- 286, 292-299
168	PAC20	ORF2711	unknown	7-14, 21-30, 34-50, 52-63, 65-72, 77-84, 109-124, 129-152, 158-163, 175-190, 193- 216, 219-234

spot ID	GI no. or TIGR no.	S. aureus protein (ORF no. / abbrev.)	Putative function (by homology)	Seq ID no: (DNA, Prot)
PCK2	TIGR1280	ORF0599	Glycinamide-ribosyl synthase	107, 108

PCK4	7672993	ORF2268 IsaA	possibly adhesion/aggregation	12, 64
PCK5	TIGR6209	ORF0484 yitU	conserved hypoth. protein (yitU)	109, 110
PCK6	TIGR6182	ORF2309	membrane-associated malate-quinone oxidase	111, 112
POV2	6434044	ORF0766 aux1	protein phosphatase contributing to methicillin resistance	113, 114
POV3.1	7672993	ORF2268 IsaA	possibly adhesion/aggregation	12, 64
POV3.2	7672993	ORF2268 IsaA	possibly adhesion/aggregation	12, 64
POV4	TIGR8079	ORF0078 EF-Tu	C-terminal part of 44 kDa protein similar to elongation factor Tu	115, 116
POV5 <sup>1)</sup>	TIGR8091	ORF0782	3-ketoacyl-acyl carrier protein reductase (fabG)	117, 118
POV7	2500720	ORF0317 SecA	protein transport across the membrane SecA	39, 91
POV10	TIGR8097	ORF1252 yrzC	hypothetical BACSU 11.9 kd protein (upf0074 (rff2) family)	119, 120
POV12	2499415	ORF0621 pdhB	dihydrolipoamide acetyltransferase (pdhB)	121, 122
POV13	7470965	ORF0094 SdrD	fibrinogen-bdg. (LPXTG) protein homolog (SdrD)	123, 124
POV14	1350849	ORF0072 rpoB	DNA-directed RNA polymerase $\beta$	125, 126
POV15	6920067	ORF0077 EF-G	85 kD vitronectin binding protein	127, 128
POV17	TIGR8079	ORF0078	C-terminal part of 44 kDa protein similar to elongation factor Tu	115, 116
POV18	3025223	not found	general stress protein YLY1	129, 130
POV30 <sup>1)</sup>	350771	ORF0069 RL7	ribosomal protein L7	131, 132
POV21		ORF0103	probable hexulose-6-phosphate synthase (yckG)	133, 134
POV23		ORF0182	lipoprotein (S.epidermis)	135, 136

<sup>1)</sup> identified from a total lysate from *S. aureus* 8325-4 spa- grown under standard conditions. Seroreactivity with 1/1 patient and 2/4 normal sera but not with infant serum (C5).

**References**

- Aichinger G., Karlsson L., Jackson M.R., Vestberg M., Vaughau J.H., Teyton L., Lechler R.I. and Peterson P A. Major Histocompatibility Complex classII-dependent unfolding, transport and degradation of endogenous proteins. *J. Biol. Chem.*, v.272, 1997, pp. 29127-29136
- Ausubel, F.M., Brent, R., Kingston, R.E., Moore, D.D., Seidman, J.G., Smith, J.A. and Struhl, K. Eds.(1994). *Current protocols in molecular biology*. John Wiley & Sons, Inc.
- Betley, M.J., Lofdahl, S., Kreiswirth, B.N., Bergdoll, M.S. and Novick, R.P. (1984). Staphylococcal enterotoxin A gene is associated with a variable genetic element. *Proc. Natl. Acad. Sci. U.S.A.* 81:5179-5183.
- Bruggemann M, Neuberger MS (1996) *Immunol. Today* 17:391-397
- Burnie, J.P., Matthews, R.C., Carter, T., Beaulieu, E., Donohoe, M., Chapman, C., Williamson, P. and Hodgetts, S.J. (2000). Identification of an immunodominant ABC transporter in methicillin-resistant *Staphylococcus aureus* infections. *Infect. Immun.* 68:3200-3209.
- Chen, H.Z. and Zubay, G. (1983). *Methods Enzymol.* 101:674-690.
- Coloque-Navarro, P., Söderquist, B., Holmberg, H., Blomqvist, L., Olcen, P., and Möllby, R.(1998) Antibody response in *Staphylococcus aureus* septicaemia - a prospective study. *J. Med. Microbiol.* 47, 217-25.
- Crossley, K.B. and Archer G.L., eds. (1997). *The Staphylococci in Human Disease*. Churchill Livingston Inc.
- Flock, J.-I. (1999). Extracellular-matrix-binding proteins as targets for the prevention of *Staphylococcus aureus* infections. *Molecular Medicine Today* 5:532-537.
- Forrer, P., Jung, S. and Plückthun, A. (1999). Beyond binding: using phage display to select for structure, folding and enzymatic activity in proteins. *Curr. Opin. Struct. Biol.* 9:514-520.

- Foster, T.J. and Hook, M. (1998). Surface protein adhesins of *Staphylococcus aureus*. *Trends Microbiol.* 6:484-488.
- Frénay, H. M. E., Theelen, J. P. G., Schouls, L. M., Vandenbroucke-Grauls, C. M. J. E., Vernoef, J., van Leeuwen, W. J., and Mooi, F. R. (1994). Discrimination of epidemic and nonepidemic methicillin-resistant *Staphylococcus aureus* on the basis of protein A gene polymorphism. *J. Clin. Microbiol.* 32:846-847.
- Georgiou, G., Stathopoulos, C., Daugherty, P.S., Nayak, A.R., Iverson, B.L. and Curtiss III, R. (1997). Display of heterologous proteins on the surface of microorganisms: From the screening of combinatorial libraries to live recombinant vaccines. *Nature Biotechnology* 15:29-34.
- Goh, S.-H., Byrne, S. K., Zhang, J. L., and Chow, A. W. (1992). Molecular typing of *Staphylococcus aureus* on the basis of coagulase gene polymorphisms. *J. Clin. Microbiol.* 30:1642-1645.
- Graziano et al. (1995) *J. Immunol.* 155:4996-5002
- Hammer et al. *J. Exp. Med* (1995) 181: 1847-1855
- Hanes, J. and Plückthun, A. (1997). In vitro selection and evolution of functional proteins by using ribosome display. *PNAS* 94:4937-4942.
- Hashemzadeh-Bonehi, L., Mehraein-Ghomi, F., Mitsopoulos, C., Jacob, J.P., Hennessey, E.S. and Broome-Smith, J.K. (1998). Importance of using lac rather than ara promoter vectors for modulating the levels of toxic gene products in *Escherichia coli*. *Mol. Microbiol.* 30:676-678.
- Hryniewicz, W. (1999). Epidemiology of MRSA. *Infection* 27:S13-16.
- Immler, D., Gremm, D., Kirsch, D., Spengler, B., Presek, P., Meyer, H.E. (1998). *Electrophoresis* 19:1015-1023.
- Kajava, A.V., Zolov, S.N., Kalinin, A.E. and Nesmeyanova, M.A. (2000). The net charge of the first 18 residues of the mature sequence affects protein translocation across the cytoplasmic membrane of Gram-negative bacteria. *J. Bacteriol.* 182:2163-2169.
- Kluytmans, J., van Belkum, A. and Verbrugh, H. (1997). Nasal car-

riage of *Staphylococcus aureus*: epidemiology, underlying mechanisms, and associated risks. Clin. Microbiol. Rev. 10:505-520.

Kolaskar, A.S. and Tongaonkar, P.C. (1990). A semi-empirical method for prediction of antigenic determinants on protein antigens. FEBS Lett. 276:172-174.

Lim, Y., Shin, S.H., Jang, I.Y., Rhee, J.H. and Kim, I.S. (1998). Human transferrin-binding protein of *Staphylococcus aureus* is immunogenic in vivo and has an epitope in common with human transferrin receptor. FEMS Microbiol. Letters 166:225-230.

Lorenz, U., Ohlsen, K., Karch, H., Hecker, M., Thiede, A. and Hacker, J. (2000). Human antibody response during sepsis against targets expressed by methicillin resistant *Staphylococcus aureus*. FEMS Immunol. Med. Microbiol. 29:145-153.

Mamo, W., Jonsson, P. and Muller, H.P. (1995). Opsonization of *Staphylococcus aureus* with a fibronectin-binding protein antiserum induces protection in mice. Microb. Pathog. 19:49-55

McGuinness BT et al. (1996) Nature Biotech. 14:1149

Modun, B., Evans, R.W., Joannou, C.L. and Williams, P. (1998). Receptor-mediated recognition and uptake of iron from human transferrin by *Staphylococcus aureus* and *Staphylococcus epidermidis*. Infect. Immun. 66:3591-3596.

Nilsson, I., Patti, J.M., Bremell, T., Höök, M. and Tarkowski, A. (1998). Vaccination with a Recombinant Fragment of Collagen Adhesin provides Protection against *Staphylococcus aureus*-mediated Septic Death. J. Clin. Invest. 101:2640-2649.

Parker, K. C., M. A. Bednarek, and J. E. Coligan (1994) Scheme for ranking potential HLA-A2 binding peptides based on independent binding of individual peptide side-chains. J. Immunol. 152:163.

Pasquali, C., Fialka, I. & Huber, L.A. (1997). Electrophoresis 18:2573-2581.

Phillips-Quagliata, J.M., Patel, S., Han, J.K., Arakelov, S., Rao, T.D., Shulman, M.J., Fazel, S., Corley, R.B., Everett, M., Klein, M.H., Underdown, B.J. and Cortes, B. (2000). The IgA/IgM

receptor expressed on a murine B cell lymphoma is poly-Ig receptor. J. Immunol. 165:2544-2555

Rammensee, Hans-Georg, Jutta Bachmann, Niels Nikolaus Emmerich, Oskar Alexander Bachor, Stefan Stevanovic (1999) SYFPEITHI: database for MHC ligands and peptide motifs. Immunogenetics 50: 213-219

Recsei P., Kreiswirth, B., O'Reilly, M., Schlievert, P., Gruss, A. and Novick, R.P. (1986). Regulation of exoprotein gene expression in Staphylococcus aureus by agr. Mol. Gen. Genet. 202:58-61.

Rodi, D.J. and Makowski, L. (1999). Phage-display technology--finding a needle in a vast molecular haystack. Curr. Opin. Biotechnol. 10:87-93.

Schaffitzel et al., Ribosome display: an in vitro method for selection and evolution of antibodies from libraries; Journal of Immunological Methods 231, 119-135 (1999).

Sanchez-Campillo, M., Bini, L., Comanducci, M., Raggiaschi, R., Marzocchi, B., Pallini, V. and Ratti, G. (1999). Electrophoresis 20:2269-2279.

Schmitt A, Keilholz U, Thiel E, Scheibenbogen C. (2000) Quantification of tumor-specific T lymphocytes with the ELISPOT assay. J Immunother 23(3):289-95

Sester M, Sester U, Kohler H, Schneider T, Deml L, Wagner R, Mueller-Lantzsch N, Pees HW, Meyerhans A. (2000) Rapid whole blood analysis of virus-specific CD4 and CD8 T cell responses in persistent HIV infection. AIDS 14(17):2653-60.

Shafer, W.M. and Iandolo, J.J. (1979). Genetics of staphylococcal enterotoxin B in methicillin-resistant isolates of Staphylococcus aureus. Infect. Immun. 25:902-911.

Shibuya, A., Sakamoto, N., Shimizu, Y., Shibuya, K., Osawa, M., Hiroyama, T., Eyre, H.J., Sutherland, G.R., Endo, Y., Fujita, T., Miyabayashi, T., Sakano, S., Tsuji, T., Nakayama, E., Phillips, J.H., Lanier, L.L. and Nakauchi, H. (2000). Fc $\gamma$  receptor mediates endocytosis of IgM-coated microbes. Nature Immunology 1:441-446.)



- Skerra, A. (1994). Use of the tetracycline promoter for the tightly regulated production of a murine antibody fragment in *Escherichia coli*. *Gene* 151:131-135.
- Sohail, M. (1998). A simple and rapid method for preparing genomic DNA from Gram-positive bacteria. *Mol. Biotech.* 10:191-193.
- Sonderstrup G, Cope AP, Patel S, Congia M, Hain N, Hall FC, Parry SL, Fugger LH, Michie S, McDevitt HO (1999) HLA class II transgenic mice: models of the human CD4+ T-cell immune response. *Immunol Rev* 172:335-43
- Sturniolo, T. et al., E Bono, J Ding, L Raddrizzani, O. Tuereci, U Sahin, M Braxenthaler, F Gallazzi, MP Protti, F Sinigaglia, and J Hammer (1999) Generation of tissue-specific and promiscuous HLA ligand databases using DNA chips and virtual HLA class II matrices. *Nature Biotechnology* 17: 555-562.
- Valli et al. *J. Clin. Invest.* (1993) 91: 616-62
- VandenBergh M. F. Q., Yzerman E. P. F., van Belkum, A., Boelens, H. A. M., Sijmons, M., and Verbrugh, H. A. (1999). Follow-up of *Staphylococcus aureus* nasal carriage after 8 years: redining the persistent carrier state. *J. Clin. Microbiol.* 37:3133-3140..
- Wessel, D. and Fluegge, U.I. (1984). *Anal. Biochem.* 138:141-143.

## C l a i m s :

1. Method for identification, isolation and production of hyperimmune serum-reactive antigens from a pathogen, a tumor, an allergen or a tissue or host prone to auto-immunity, said antigens being suited for use in a vaccine for a given type of animal or for humans, characterized by the following steps:

- ♦providing an antibody preparation from a plasma pool of said given type of animal or from a human plasma pool or individual sera with antibodies against said specific pathogen, tumor, allergen or tissue or host prone to auto-immunity,
- ♦providing at least one expression library of said specific pathogen, tumor, allergen or tissue or host prone to auto-immunity
- ♦screening said at least one expression library with said antibody preparation,
- ♦identifying antigens which bind in said screening to antibodies in said antibody preparation,
- ♦screening the identified antigens with individual antibody preparations from individual sera from individuals with antibodies against said specific pathogen, tumor, allergen or tissue or host prone to auto-immunity,
- ♦identifying the hyperimmune serum-reactive antigen portion of said identified antigens and which hyperimmune serum-reactive antigens bind to a relevant portion of said individual antibody preparations from said individual sera and
- ♦optionally isolating said hyperimmune serum-reactive antigens and producing said hyperimmune serum-reactive antigens by chemical or recombinant methods.

2. Method for identification, isolation and production of a practically complete set of hyperimmune serum-reactive antigens of a specific pathogen, said antigens being suited for use in a vaccine for a given type of animal or for humans, characterized by the following steps:

- ♦providing an antibody preparation from a plasma pool of said given type of animal or from a human plasma pool or individual sera with antibodies against said specific pathogen,
- ♦providing at least three different expression libraries of said specific pathogen,

- 109 -

- ♦screening said at least three different expression libraries with said antibody preparation,
- ♦identifying antigens which bind in at least one of said at least three screenings to antibodies in said antibody preparation,
- ♦screening the identified antigens with individual antibody preparations from individual sera from individuals with antibodies against said specific pathogen,
- ♦identifying the hyperimmune serum-reactive antigen portion of said identified antigens which hyperimmune serum-reactive antigens bind to a relevant portion of said individual antibody preparations from said individual sera,
- ♦repeating said screening and identification steps at least once,
- ♦comparing the hyperimmune serum-reactive antigens identified in the repeated screening and identification steps with the hyperimmune serum-reactive antigens identified in the initial screening and identification steps,
- ♦further repeating said screening and identification steps, if at least 5% of the hyperimmune serum-reactive antigens have been identified in the repeated screening and identification steps only, until less than 5 % of the hyperimmune serum-reactive antigens are identified in a further repeating step only to obtain a complete set of hyperimmune serum-reactive antigens of a specific pathogen and
- ♦optionally isolating said hyperimmune serum-reactive antigens and producing said hyperimmune serum-reactive antigens by chemical or recombinant methods.

3. Method according to claim 1 or 2 characterized in that at least one of said expression libraries is selected from a ribosomal display library, a bacterial surface library and a proteome.

4. Method according to claim 2 characterized in that said at least three different expression libraries are at least a ribosomal display library, a bacterial surface library and a proteome.

5. Method according to any one of claims 1 to 4, characterized

in that said plasma pool is a human plasma pool taken from individuals having experienced or are experiencing an infection with said pathogen.

6. Method according to any one of claims 1 to 5, characterized in that said expression libraries are genomic expression libraries of said pathogen.

7. Method according to any one of claims 1 to 6, characterized in that said expression libraries are complete genomic expression libraries, preferably with a redundancy of at least 2x, more preferred at least 5x, especially at least 10x.

8. Method according to any one of claims 1 to 7, characterized in that it comprises the steps of screening at least a ribosomal display library, a bacterial surface display library and a proteome with said antibody preparation and identifying antigens which bind in at least two, preferably which bind to all, of said screenings to antibodies in said antibody preparation.

9. Method according to any one of claims 1 to 8, characterized in that said pathogen is selected from the group of bacterial, viral, fungal and protozoan pathogens. [ ]

10. Method according to any one of claims 1 to 9, characterized in that said pathogen is selected from the group of human immunodeficiency virus, hepatitis A virus, hepatitis B virus, hepatitis C virus, Rous sarcoma virus, Epstein-Barr virus, influenza virus, rotavirus, Staphylococcus aureus, Staphylococcus epidermidis, Chlamydia pneumoniae, Chlamydia trachomatis, Mycobacterium tuberculosis, Mycobacterium leprae, Streptococcus pneumoniae, Streptococcus pyogenes, Streptococcus agalactiae, Enterococcus faecalis, Bacillus anthracis, Vibrio cholerae, Borrelia burgdorferi, Plasmodium sp., Aspergillus sp. or Candida albicans.

11. Method according to any one of claims 1 to 10, characterized in that at least one of said expression libraries is a ribosomal display library or a bacterial surface display library and said hyperimmune serum-reactive antigens are produced by expression of the coding sequences of said hyperimmune serum-reactive antigens

contained in said library.

12. Method according to any one of claims 1 to 11, characterized in that said produced hyperimmune serum-reactive antigens are finished to a pharmaceutical preparation, optionally by addition of a pharmaceutically acceptable carrier and/or excipient.

13. Method according to claim 12, characterized in that said pharmaceutical preparation is a vaccine.

14. Method according to claim 12 or 13, characterized in that said pharmaceutically acceptable carrier and/or excipient is an immunostimulatory compound. ☐

15. Method according to claim 14, characterized in that said immunostimulatory compound is selected from the group of polycationic substances, especially polycationic peptides, immunostimulatory deoxynucleotides, alumn, Freund's complete adjuvans, Freund's incomplete adjuvans, neuroactive compounds, especially human growth hormone, or combinations thereof.

16. Method according to any one of claims 1 to 15, characterized in that said individual antibody preparations are derived from patients with acute infection with said pathogen, especially from patients with an antibody titer to said pathogen being higher than 80%, preferably higher than 90%, especially higher than 95% of human patient or carrier sera tested.

17. Method according to any one of claims 1 to 16, characterized in that at least 10, preferably at least 30, especially at least 50, individual antibody preparations are used in identifying said hyperimmune serum-reactive antigens.

18. Method according to any one of said claims 1 to 17, characterized in that said relevant portion of said individual antibody preparations from said individual sera are at least 10, preferably at least 30, especially at least 50 individual antibody preparations, and/or at least 20 %, preferably at least 30 %, especially at least 40 %, of all individual antibody preparations used in said screening.

19. Method according to any one of claims 1 to 18, characterized in that said individual sera are selected by having an IgA titer against a lysate, cell wall components or recombinant proteins of said pathogen being above 4000 U, especially above 6000 U, and/or by having an IgG titer being above 10000 U, preferably above 12000 U.

20. Method according to any one of claims 1 to 19, characterized in that said pathogen is a Staphylococcus pathogen, especially Staphylococcus aureus. and/or Staphylococcus epidermidis.

21. A hyperimmune serum-reactive antigen selected from the group consisting of the sequences listed in any one of Tables 2a, 2b, 2c, 2d, 3, 4 and 5, especially selected from the group consisting of Seq.ID No. 56, 57, 59, 60, 67, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 85, 87, 88, 89, 90, 92, 95, 96, 97, 99, 100, 101, 102, 103, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 126, 128, 130, 132, 134, 138, 140, 142, 151, 152, 154, 155 and hyperimmune fragments thereof.

22. A hyperimmune serum-reactive antigen obtainable by a method according to any one of claims 1 to 20 and being selected from the group consisting of the sequences listed in any one of Tables 2a, 2b, 2c, 2d, 3, 4 and 5, especially selected from the group consisting of Seq.ID No. 56, 57, 59, 60, 67, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 85, 87, 88, 89, 90, 92, 95, 96, 97, 99, 100, 101, 102, 103, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 126, 128, 130, 132, 134, 138, 140, 142, 151, 152, 154, 155 and hyperimmune fragments thereof.

23. Use of a hyperimmune serum-reactive antigen selected from the group consisting of the sequences listed in any one of Tables 2a, 2b, 2c, 2d, 3, 4 and 5, especially selected from the group consisting of Seq.ID No. 55, 56, 57, 58, 59, 60, 62, 66, 67, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, 89, 90, 92, 94, 95, 96, 97, 99, 100, 101, 102, 103, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 126, 128, 130, 132, 134, 138, 140, 142, 151, 152, 154, 155, 158 and hyperimmune fragments thereof for the manufacture of a pharmaceutical preparation, es-

pecially for the manufacture of a vaccine against staphylococcal infections or colonization in particular against *Staphylococcus aureus* or *Staphylococcus epidermidis*.

24. Hyperimmune fragment of a hyperimmune serum-reactive antigen selected from the group consisting of peptides comprising the amino acid sequences of column "predicted immunogenic aa", "Location of identified immunogenic region" and "Serum reactivity with relevant region" of Tables 2a, 2b, 2c and 2d and the amino acid sequences of column "Putative antigenic surface areas" of Table 4 and 5, especially peptides comprising amino acid No. aa 12-29, 34-40, 63-71, 101-110, 114-122, 130-138, 140-195, 197-209, 215-229, 239-253, 255-274 and 39-94 of Seq.ID No. 55, aa 5-39, 111-117, 125-132, 134-141, 167-191, 196-202, 214-232, 236-241, 244-249, 292-297, 319-328, 336-341, 365-380, 385-391, 407-416, 420-429, 435-441, 452-461, 477-488, 491-498, 518-532, 545-556, 569-576, 581-587, 595-602, 604-609, 617-640, 643-651, 702-715, 723-731, 786-793, 805-811, 826-839, 874-889, 37-49, 63-77 and 274-334, of Seq.ID No.56, aa 28-55, 82-100, 105-111, 125-131, 137-143, 1-49, of Seq.ID No. 57, aa 33-43, 45-51, 57-63, 65-72, 80-96, 99-110, 123-129, 161-171, 173-179, 185-191, 193-200, 208-224, 227-246, 252-258, 294-308, 321-329, 344-352, 691-707, 358-411 and 588-606, of Seq.ID No. 58, aa 16-38, 71-77, 87-94, 105-112, 124-144, 158-164, 169-177, 180-186, 194-204, 221-228, 236-245, 250-267, 336-343, 363-378, 385-394, 406-412, 423-440, 443-449, 401-494, of Seq.ID No. 59, aa 18-23, 42-55, 69-77, 85-98, 129-136, 182-188, 214-220, 229-235, 242-248, 251-258, 281-292, 309-316, 333-343, 348-354, 361-367, 393-407, 441-447, 481-488, 493-505, 510-515, 517-527, 530-535, 540-549, 564-583, 593-599, 608-621, 636-645, 656-670, 674-687, 697-708, 726-734, 755-760, 765-772, 785-792, 798-815, 819-824, 826-838, 846-852, 889-904, 907-913, 932-939, 956-964, 982-1000, 1008-1015, 1017-1024, 1028-1034, 1059-1065, 1078-1084, 1122-1129, 1134-1143, 1180-1186, 1188-1194, 1205-1215, 1224-1230, 1276-1283, 1333-1339, 1377-1382, 1415-1421, 1448-1459, 1467-1472, 1537-1545, 1556-1566, 1647-1654, 1666-1675, 1683-1689, 1722-1737, 1740-1754, 1756-1762, 1764-1773, 1775-1783, 1800-1809, 1811-1819, 1839-1851, 1859-1866, 1876-1882, 1930-1939, 1947-1954, 1978-1985, 1999-2007, 2015-2029, 2080-2086, 2094-2100, 2112-2118, 2196-2205,

- 114 -

2232-2243, 198-258, 646-727 and 2104-2206, of Seq.ID No. 60,  
aa 10-29, 46-56, 63-74, 83-105, 107-114, 138-145, 170-184, 186-  
193, 216-221, 242-248, 277-289, 303-311, 346-360, 379-389, 422-  
428, 446-453, 459-469, 479-489, 496-501, 83-156, of Seq.ID No.  
62,  
aa 14-22, 32-40, 52-58, 61-77, 81-93, 111-117, 124-138, 151-190,  
193-214, 224-244, 253-277, 287-295, 307-324, 326-332, 348-355,  
357-362, 384-394, 397-434, 437-460, 489-496, 503-510, 516-522,  
528-539, 541-547, 552-558, 563-573, 589-595, 602-624, 626-632,  
651-667, 673-689, 694-706, 712-739, 756-790, 403-462, of Seq.ID  
No. 66,  
aa 49-56, 62-68, 83-89, 92-98, 109-115, 124-131, 142-159, 161-  
167, 169-175, 177-188, 196-224, 230-243, 246-252, 34-46, of  
Seq.ID No. 67,  
aa 11-20, 26-47, 69-75, 84-92, 102-109, 119-136, 139-147, 160-  
170, 178-185, 190-196, 208-215, 225-233, 245-250, 265-272, 277-  
284, 300-306, 346-357, 373-379, 384-390, 429-435, 471-481, 502-  
507, 536-561, 663-688, 791-816, 905-910, 919-933, 977-985, 1001-  
1010, 1052-1057, 1070-1077, 1082-1087, 1094-1112, 493-587, 633-  
715 and 704-760, of Seq.ID No.70, ☐  
aa.6-20, 53-63, 83-90, 135-146, 195-208, 244-259, 263-314, 319-  
327, 337-349, 353-362, 365-374, 380-390, 397-405, 407-415, 208-  
287 and 286-314, of Seq.ID No. 71,  
aa 10-26, 31-43, 46-58, 61-66, 69-79, 85-92, 100-115, 120-126,  
128-135, 149-155, 167-173, 178-187, 189-196, 202-222, 225-231,  
233-240, 245-251, 257-263, 271-292, 314-322, 325-334, 339-345,  
59-74, of Seq.ID No. 72,  
aa 4-9, 15-26, 65-76, 108-115, 119-128, 144-153, 38-52 and 66-  
114, of Seq.ID No. 73,  
aa 5-22, 42-50, 74-81, 139-145, 167-178, 220-230, 246-253, 255-  
264, 137-237 and 250-267, of Seq.ID No. 74,  
aa 10-26, 31-44, 60-66, 99-104, 146-153, 163-169, 197-205, 216-  
223, 226-238, 241-258, 271-280, 295-315, 346-351, 371-385, 396-  
407, 440-446, 452-457, 460-466, 492-510, 537-543, 546-551, 565-  
582, 590-595, 635-650, 672-678, 686-701, 705-712, 714-721, 725-  
731, 762-768, 800-805, 672-727, of Seq.ID No. 75,  
aa 5-32, 35-48, 55-76, of Seq.ID No. 76,  
aa 7-35, 54-59, 247-261, 263-272, 302-320, 330-339, 368-374, 382-  
411, 126-143 and 168-186, of Seq.ID No. 77,  
aa 5-24, 88-94, 102-113, 132-143, 163-173, 216-224, 254-269, 273-



- 115 -

278, 305-313, 321-327, 334-341, 31-61 and 58-74, of Seq.ID No. 78,

aa 16-24, 32-39, 43-49, 64-71, 93-99, 126-141, 144-156, 210-218, 226-233, 265-273, 276-284, 158-220, of Seq.ID No. 79,

aa 49-72, 76-83, 95-105, 135-146, 148-164, 183-205, 57-128, of Seq.ID No. 80,

aa 6-15, 22-32, 58-73, 82-88, 97-109, 120-131, 134-140, 151-163, 179-185, 219-230, 242-255, 271-277, 288-293, 305-319, 345-356, 368-381, 397-406, 408-420, 427-437, 448-454, 473-482, 498-505, 529-535, 550-563, 573-580, 582-590, 600-605, 618-627, 677-685, 718-725, 729-735, 744-759, 773-784, 789-794, 820-837, 902-908, 916-921, 929-935, 949-955, 1001-1008, 1026-1032, 1074-1083, 1088-1094, 1108-1117, 1137-1142, 1159-1177, 1183-1194, 1214-1220, 1236-1252, 1261-1269, 1289-1294, 1311-1329, 1336-1341, 1406-1413, 1419-1432, 1437-1457, 1464-1503, 1519-1525, 1531-1537, 1539-1557, 1560-1567, 1611-1618, 1620-1629, 1697-1704, 1712-1719, 1726-1736, 1781-1786, 1797-1817, 1848-1854, 1879-1890, 1919-1925, 1946-1953, 1974-1979, 5 to 134, of Seq.ID No. 81,

aa 6-33, 40-46, 51-59, 61-77, 84-104, 112-118, 124-187, 194-248, 252-296, 308-325, 327-361, 367-393, 396-437, 452-479, 484-520, 535-545, 558-574, 582-614, 627-633, 656-663, 671-678, 698-704, 713-722, 725-742, 744-755, 770-784, 786-800, 816-822, 827-837, 483-511, of Seq.ID No. 82,

aa 4-19, 57-70, 79-88, 126-132, 144-159, 161-167, 180-198, 200-212, 233-240, 248-255, 276-286, 298-304, 309-323, 332-346, 357-366, 374-391, 394-406, 450-456, 466-473, 479-487, 498-505, 507-519, 521-530, 532-540, 555-565, 571-581, 600-611, 619-625, 634-642, 650-656, 658-665, 676-682, 690-699, 724-733, 740-771, 774-784, 791-797, 808-815, 821-828, 832-838, 876-881, 893-906, 922-929, 938-943, 948-953, 969-976, 1002-1008, 1015-1035, 1056-1069, 1105-1116, 1124-1135, 1144-1151, 1173-1181, 1186-1191, 1206-1215, 1225-1230, 1235-1242, 6-66, 65-124 and 590-604, of Seq.ID No. 83,

aa 5-32, 66-72, 87-98, 104-112, 116-124, 128-137, 162-168, 174-183, 248-254, 261-266, 289-303, 312-331, 174-249, of Seq.ID No. 84,

aa 4-21, 28-40, 45-52, 59-71, 92-107, 123-137, 159-174, 190-202, 220-229, 232-241, 282-296, 302-308, 312-331, 21-118, of Seq.ID No. 85,

aa 9-28, 43-48, 56-75, 109-126, 128-141, 143-162, 164-195, 197-216, 234-242, 244-251, 168-181, of Seq.ID No. 87,

- 116 -

aa 4-10, 20-42, 50-86, 88-98, 102-171, 176-182, 189-221, 223-244, 246-268, 276-284, 296-329, 112-188, of Seq.ID No. 88,

aa 4-9, 13-24, 26-34, 37-43, 45-51, 59-73, 90-96, 99-113, 160-173, 178-184, 218-228, 233-238, 255-262, 45-105, 103-166 and 66-153, of Seq.ID No. 89,

aa 13-27, 42-63, 107-191, 198-215, 218-225, 233-250, 474-367, of Seq.ID No. 90,

aa 26-53, 95-123, 164-176, 189-199, 8-48, of Seq.ID No. 92,

aa 7-13, 15-23, 26-33, 68-81, 84-90, 106-117, 129-137, 140-159, 165-172, 177-230, 234-240, 258-278, 295-319, 22-56, 23-99, 97-115, 233-250 and 245-265, of Seq.ID No. 94,

aa 13-36, 40-49, 111-118, 134-140, 159-164, 173-183, 208-220, 232-241, 245-254, 262-271, 280-286, 295-301, 303-310, 319-324, 332-339, 1-85, 54-121 and 103-185, of Seq.ID No. 95,

aa 39-44, 46-80, 92-98, 105-113, 118-123, 133-165, 176-208, 226-238, 240-255, 279-285, 298-330, 338-345, 350-357, 365-372, 397-402, 409-415, 465-473, 488-515, 517-535, 542-550, 554-590, 593-601, 603-620, 627-653, 660-665, 674-687, 698-718, 726-739, 386-402, of Seq.ID No. 96,

aa 5-32, 34-49, 1-43, of Seq.ID No. 97,

aa 10-27, 37-56, 64-99, 106-119, 121-136, 139-145, 148-178, 190-216, 225-249, 251-276, 292-297, 312-321, 332-399, 403-458, 183-200, of Seq.ID No. 99,

aa 5-12, 15-20, 43-49, 94-106, 110-116, 119-128, 153-163, 175-180, 185-191, 198-209, 244-252, 254-264, 266-273, 280-288, 290-297, 63-126, of Seq.ID No. 100,

aa 5-44, 47-55, 62-68, 70-78, 93-100, 128-151, 166-171, 176-308, 1-59, of Seq.ID No. 101,

aa 18-28, 36-49, 56-62, 67-84, 86-95, 102-153, 180-195, 198-218, 254-280, 284-296, 301-325, 327-348, 353-390, 397-402, 407-414, 431-455, 328-394, of Seq.ID No. 102,

aa 7-37, 56-71, 74-150, 155-162, 183-203, 211-222, 224-234, 242-272, 77-128, of Seq.ID No. 103,

aa 34-58, 63-69, 74-86, 92-101, 130-138, 142-150, 158-191, 199-207, 210-221, 234-249, 252-271, 5-48, of Seq.ID No. 104,

aa 12-36, 43-50, 58-65, 73-78, 80-87, 108-139, 147-153, 159-172, 190-203, 211-216, 224-232, 234-246, 256-261, 273-279, 286-293, 299-306, 340-346, 354-366, 167-181, of Seq.ID No. 106,

aa 61-75, 82-87, 97-104, 113-123, 128-133, 203-216, 224-229, 236-246, 251-258, 271-286, 288-294, 301-310, 316-329, 337-346,

- 117 -

348-371, 394-406, 418-435, 440-452 of Seq.ID No. 112,  
aa 30-37, 44-55, 83-91, 101-118, 121-128, 136-149, 175-183, 185-193, 206-212, 222-229, 235-242 of Seq.ID No. 114,  
aa 28-38, 76-91, 102-109, 118-141, 146-153, 155-161, 165-179, 186-202, 215-221, 234-249, 262-269, 276-282, 289-302, 306-314, 321-326, 338-345, 360-369, 385-391 of Seq.ID No. 116,  
aa 9-33, 56-62, 75-84, 99-105, 122-127, 163-180, 186-192, 206-228, 233-240, 254-262, 275-283, 289-296, 322-330, 348-355, 416-424, 426-438, 441-452, 484-491, 522-528, 541-549, 563-569, 578-584, 624-641, 527-544, of Seq.ID No. 142,  
aa 37-42, 57-62, 121-135, 139-145, 183-190, 204-212, 220-227, 242-248, 278-288, 295-30, 304-309, 335-341, 396-404, 412-433, 443-449, 497-503, 505-513, 539-545, 552-558, 601-617, 629-649, 702-711, 736-745, 793-804, 814-829, 843-858, 864-885, 889-895, 905-913, 919-929, 937-943, 957-965, 970-986, 990-1030, 1038-1049, 1063-1072, 1080-1091, 1093-1116, 1126-1136, 1145-1157, 1163-1171, 1177-1183, 1189-1196, 1211-1218, 1225-1235, 1242-1256, 1261-1269, 624-684, of Seq.ID No. 151,  
aa 8-23, 31-38, 42-49, 61-77, 83-90, 99-108, 110-119, 140-147, 149-155, 159-171, 180-185, 189-209, 228-234, 245-262, 264-275, 280-302, 304-330, 343-360, 391-409, 432-437, 454-463, 467-474, 478-485, 515-528, 532-539, 553-567, 569-581, 586-592, 605-612, 627-635, 639-656, 671-682, 700-714, 731-747, 754-770, 775-791, 797-834, 838-848, 872-891, 927-933, 935-942, 948-968, 976-986, 1000-1007, 1029-1037, 630-700, of Seq.ID No. 152,  
aa 17-25, 27-55, 84-90, 95-101, 115-121, 55-101, of Seq.ID No. 154,  
aa 13-28, 40-46, 69-75, 86-92, 114-120, 126-137, 155-172, 182-193, 199-206, 213-221, 232-238, 243-253, 270-276, 284-290, 22-100, of Seq.ID No. 155 and  
aa 7-19, 46-57, 85-91, 110-117, 125-133, 140-149, 156-163, 198-204, 236-251, 269-275, 283-290, 318-323, 347-363, 9-42 and 158-174, of Seq.ID No. 158,  
aa 7-14, 21-30, 34-50, 52-63, 65-72, 77-84, 109-124, 129-152, 158-163, 175-190, 193-216, 219-234 of Seq.ID.No. 168,  
aa 5-24, 38-44, 100-106, 118-130, 144-154, 204-210, 218-223, 228-243, 257-264, 266-286, 292-299 of Seq.ID.No. 174,  
aa 29-44, 74-83, 105-113, 119-125, 130-148, 155-175, 182-190, 198-211, 238-245 of Seq.ID.No. 176, and fragments as depicted in Tables 2 and 4 and fragments comprising at least 6, preferably

more than 8, especially more than 10 aa of said sequences.

25. Helper epitopes of an antigen or a fragment, as defined in anyone of claims 21 to 24, especially peptides comprising fragments selected from the peptides mentioned in column "Putative antigenic surface areas" in Table 4 and 5 and from the group aa 6-40, 583-598, 620-646 and 871-896 of Seq.ID.No.56, aa 24-53 of Seq.ID.No.70, aa 240-260 of Seq.ID.No.74, aa 1660-1682 and 1746-1790 of Seq.ID.No. 81, aa 1-29, 680-709, and 878-902 of Seq.ID.No. 83, aa 96-136 of Seq.ID.No. 89, aa 1-29, 226-269 and 275-326 of Seq.ID.No. 94, aa 23-47 and 107-156 of Seq.ID.No. 114 and aa 24-53 of Seq.ID.No. 142 and fragments thereof being T-cell epitopes.

26. Vaccine comprising a hyperimmune serum-reactive antigen or a fragment thereof, as defined in any one of claims 21 to 25.

27. Vaccine according to claim 25, characterized in that it further comprises an immunostimulatory substance, preferably selected from the group comprising polycationic polymers, especially polycationic peptides, immunostimulatory deoxynucleotides (ODNs), neuroactive compounds, especially human growth hormone, alumn, Freund's complete or incomplete adjuvans or combinations thereof.

28. Preparation comprising antibodies against at least one antigen or a fragment thereof, as defined in any one of claims 21 to 25.

29. Preparation according to claim 27, characterized in that said antibodies are monoclonal antibodies.

30. Method for producing a preparation according to claim 28, characterized by the following steps:

- initiating an immune response in a non human animal by administering an antigen or a fragment thereof, as defined in any one of the claims 21 to 25, to said animal,
- removing the spleen or spleen cells from said animal,
- producing hybridoma cells of said spleen or spleen cells,
- selecting and cloning hybridoma cells specific for said anti-

- 119 -

gen and

•producing the antibody preparation by cultivation of said cloned hybridoma cells and optionally further purification steps.

31. Method according to claim 29, characterized in that said removing the spleen or spleen cells is connected with killing said animal.

32. Method for producing a preparation according to claim 27, characterized by the following steps:

- initiating an immune response in a non human animal by administering an antigen or a fragment thereof, as defined in any one of the claims 21 to 25, to said animal,
- removing an antibody containing body fluid from said animal,
- and
- producing the antibody preparation by subjecting said antibody containing body fluid to further purification steps.

33. Use of a preparation according to claim 27 or 28 for the manufacture of a medicament for treating or preventing staphylococcal infections or colonization in particular against *Staphylococcus aureus* or *Staphylococcus epidermidis*.

34. A screening method assessing the consequences of functional inhibition of at least one antigen or a fragment thereof, as defined in any one of claims 21 to 25.

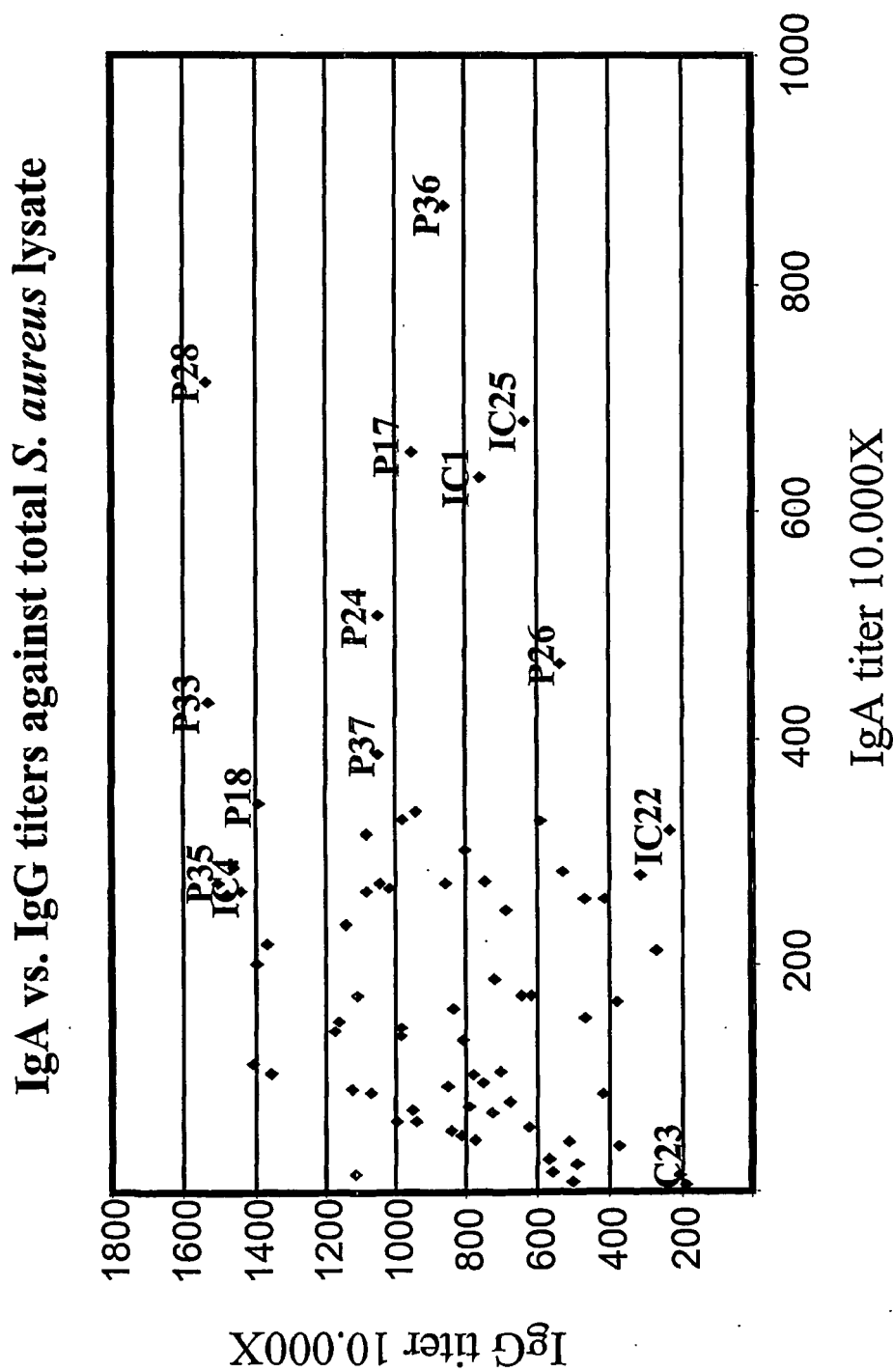


Figure 1

2/11

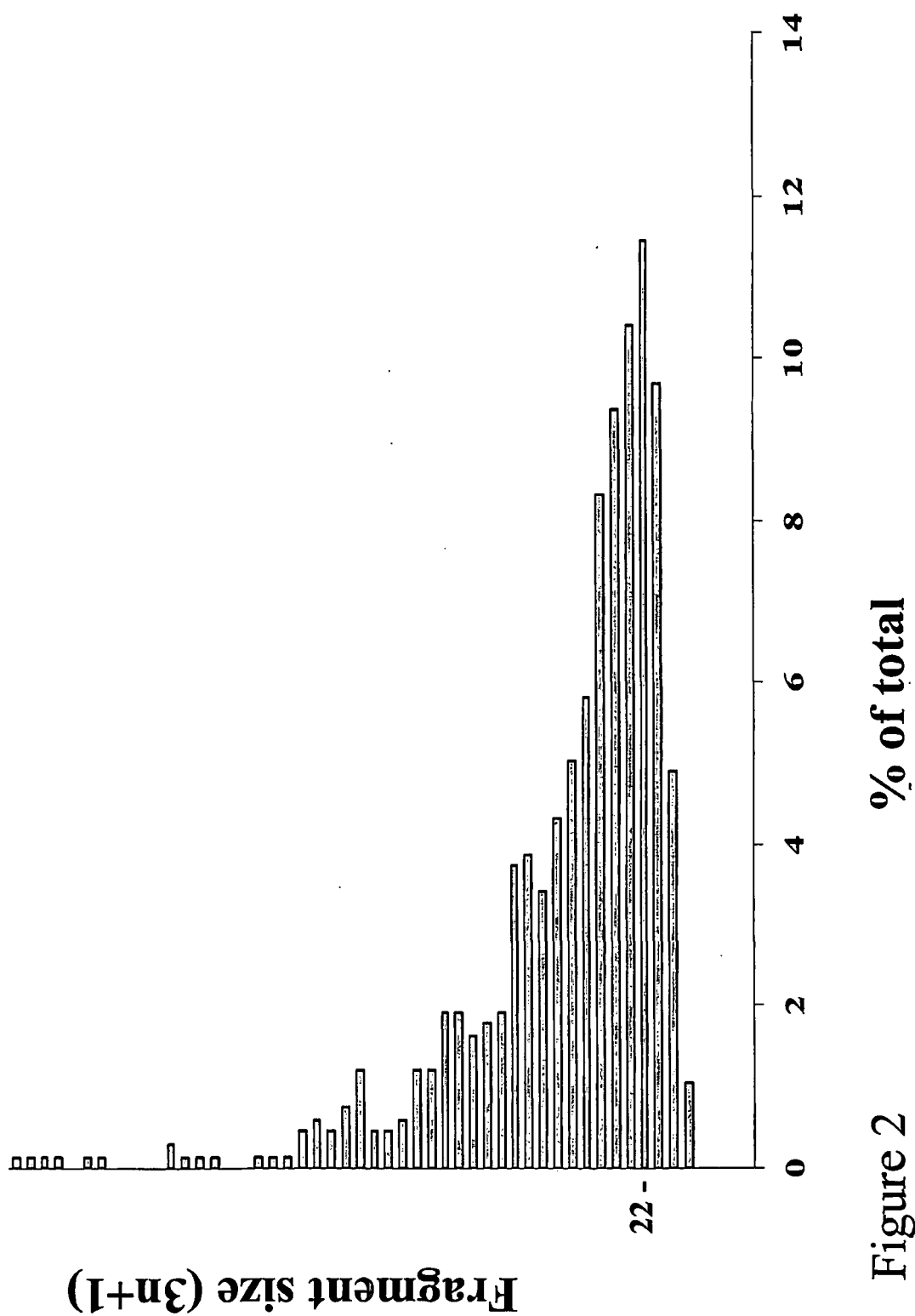


Figure 2

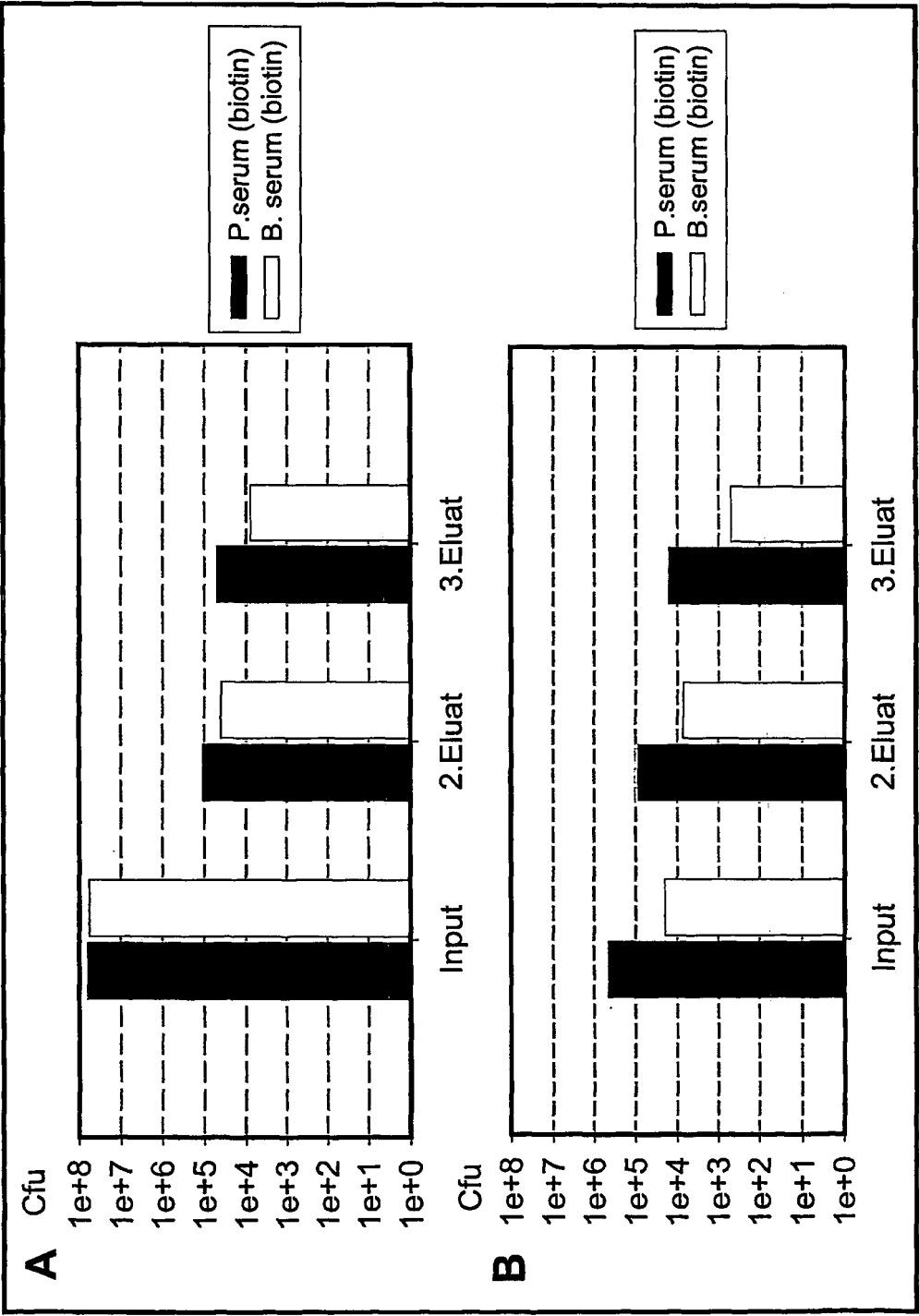


Figure 3



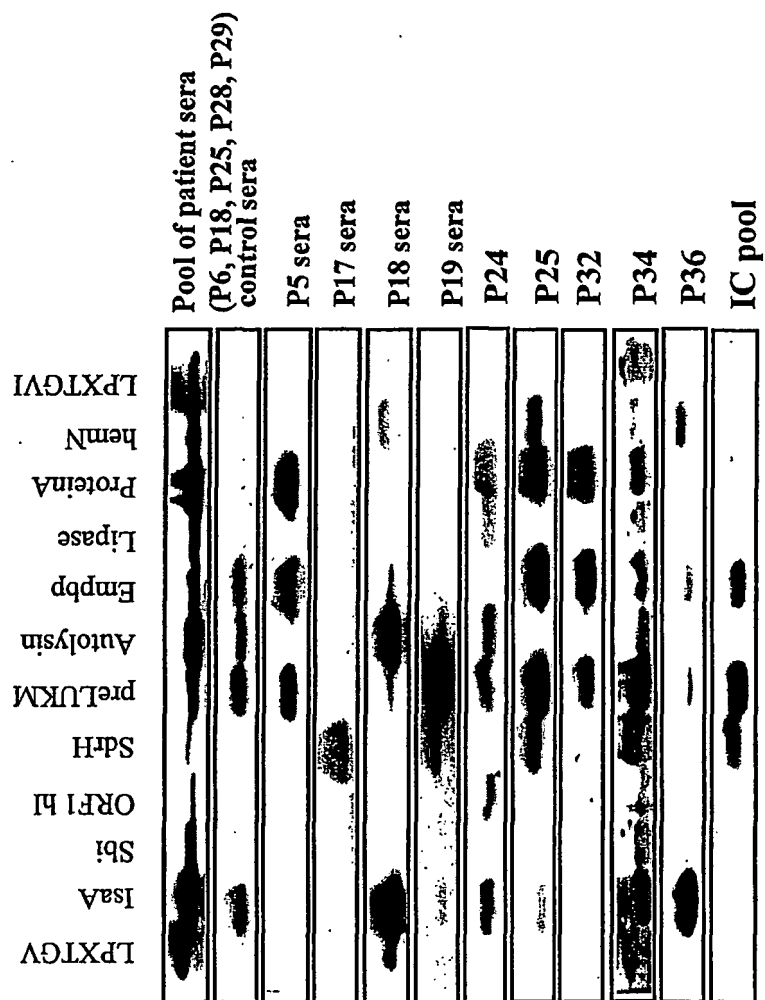


Figure 4

ORF276 peptide-ELISA with different sera

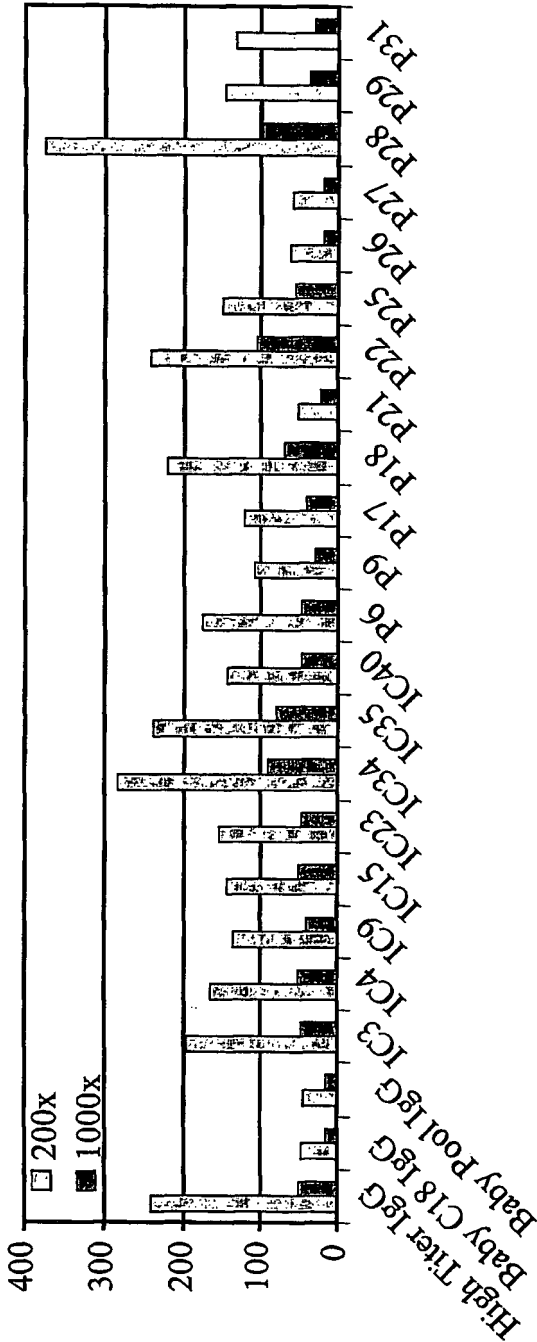


Figure 5

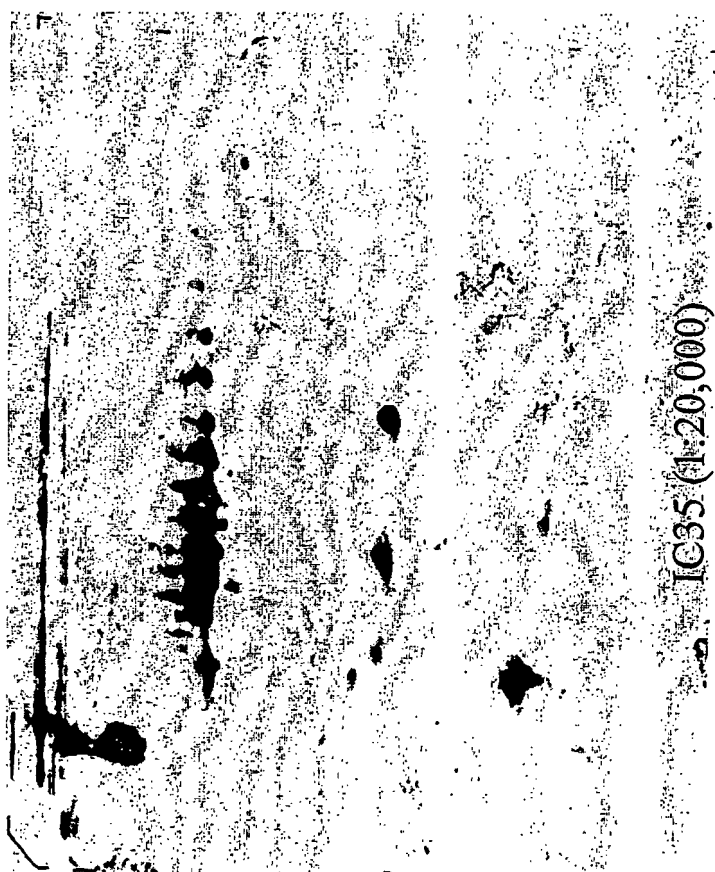


Figure 6

7/11



Figure 7

LPXTG				
SP	EXTRACELL. DOMAIN	SPACER REGION IN CELL WALL	TMD	++
Pls	M---NKNS-KKKLDFLPNKLNKYSIRRFVTGTA	SILVGATLI	FGVAND-QAEAAENNTTQ	
SdrC	M---NNKKTATNRKGMIPNRLNKFSIRKYSVGTAS	ILVGTTLIF	GLSGH-EAKAAEHTNGE	
SdrD	MLNRENKTAITRKGMVSNRLNKFSIRKYTVGTAS	ILVGTTLIF	GLGNQ-EAKAAESTNK	
SdrE	MINRDNKKAITKKGMISSNRLNKFSIRKYTVGTAS	ILVGTTLIF	GLGNQ-EAKAAE	
ClfA	M-----NMKKKEKHAIRKKSIGVASVLVGT	LIGFGLLS	KEADASENSVTQ	
ClfB	M-----KKRIDYLSNKQNKYSIRRFVTGTTSV	IVGATIL	FGIG-NHQQAASEQSNdT	
FnBPA	M-----KNNLRYGIRKHKHKGAAASVFLGT	MI	VVGMGQDKEAAASEQKTTT	
FnBPB	M-----KSNLRYGIRKHKHKGAAASVFLGT	MI	VVGMGQEKKEAAASEQNNTT	
Prot A	M-----KKKNIYSIRKLGVGIA	SVTLGTL	LLISGGVTPA-ANAAQHDEAQ	
Mrp	M-----NLFRQOKFSIRKFNVGIF	SALIA	TVTFISTNPTT-ASAAEQNQPA	
LPXTG5	M-----NKHHPKLRSFYSIRKSTLGVAS	VIVSTL	FLITS--QHQAQAAGENTNTS	
LPXTG4	M-RDKKGPVNKRVDFLSNKLNKYSIRKFTVGTAS	ILIGSLMYL	GTQ--QEAEAAEENNIEN	
LPXTG3	M-----NLLKKNKYSIRKYKVGIF	STLIGTVL	LLLSNPNG--AQALTIDNNV	
Lipase	M-----MKSQNKYSIRKFSV	GASSIL	IA	TLLFLSGG--QAQAAEKQVNM
2992aa	-----TIAVNRYDKIQKFSIRKYTVGT	FSTVIAT	LVFLGFNTS-QAHAAETNQPA	
Cna	M-----NKNVLKFMVFI	MLLNI	ITPLFNKNEAFAARDISST	
Map-w	M-----KFKSLITTTT	LALGVIA	STGANFNTNEASAAAKPL	
LPXTG1	M-----IYYWCMTVNGNEMKALLKT	SVWL	VLLF	FSVMGLW-QVSNAAEQHTPM
LPXTG2	M-----SKRQKAFHDSLANEKTRVRLYK	SGKNW	VKSGIKEIEMFKIMGLP	FISHSLVSQ
PBP2a	M-----KKIKIVPLILIVV	VVVGFI	YFYASKDKEINNTIDAIEDKNFK	

Figure 8A

Constitutive Cell Wall Proteins of *S. aureus* with LPXTG motif

	Known proteins	Mw/pI	LPXTG hydrophobic membrane domain basic C-term.
1	Mrp protein	255/4.6	AKTLPDTGMSHNDLIPYAEALALGAGMAFLIRRTKKDQQTEE
2	Pls (MRSA)	167/4.1	NKELPDTGND AQNNGTLFGSLFAALGGLFLVGRRRKKNNEEK
3	SdrD (SD-repeat)	133/4.1	AKALPETGNE <del>NSGSNNATLFGGLFAALGSLLLFGRKKQNK</del>
4	Cna	126/5.6	LKELPKTGMKII <del>TSWITWVF</del> IGILGLYLILRRKFN
5	SdrE	117/4.1	AKALPETGSEN <del>NGSNNATLFGGLFAALGSLLLFGRKKQNK</del>
6	FnBPA	104/4.5	KSELPETGGEEST <del>NKGMLFGGLFSILGLALLRRNKNHKA</del>
7	SdrC	94/4.1	AKALPETGSEN <del>NNSNGTLFGGLFAALGSLLSFGRRKKQNK</del>
8	FnBPB	96/4.5	KSELPETGGEEST <del>NNGMLFGGLFSILGLALLRRNKNHKA</del>
9	ClfA	89/3.4	KEPLPDTGSEDE <del>ANTSLIWGLLASIGSLLLFRRKKENKDKK</del>
10	ClfB	88/3.7	TDALPETGDKSEN <del>TNATLFGAMMALLGSLLLFRRKKQDHKEKA</del>
11	Spa (Protein A)	48/5.2	AQALPETGEEN <del>PFIGTTFVGGLSLALGAALLAGRRREL</del>

	Predicted based on sequence (TIGR)		
1	Anonymus I.	79/9.3	EKQLPKTGTNKSSSP <del>EAMFVLLAGIGLIAIVRRRKAS</del>
2	Anonymus II.	227/4.2	EKRLPDTGDSIKON <del>GLLGVM<sup>T</sup>LLVGLMKRRKKKDEND</del>
3	Anonymus III.	200/4.1	EKELPNTGSEGMD <del>LPLKEFALITGAALLARRRTKNEKES</del>
4	Anonymus IV.	122/5.8	RAELPKTGLESTQ <del>KGLIFSSIIIGIAGLMLLARRRKN</del>
5	Anonymus V.	101/5.0	SKMLPKTGETTSS <del>QSWWGLYALLGMLALFIPKFKESK</del>

Figure 8B

10/11

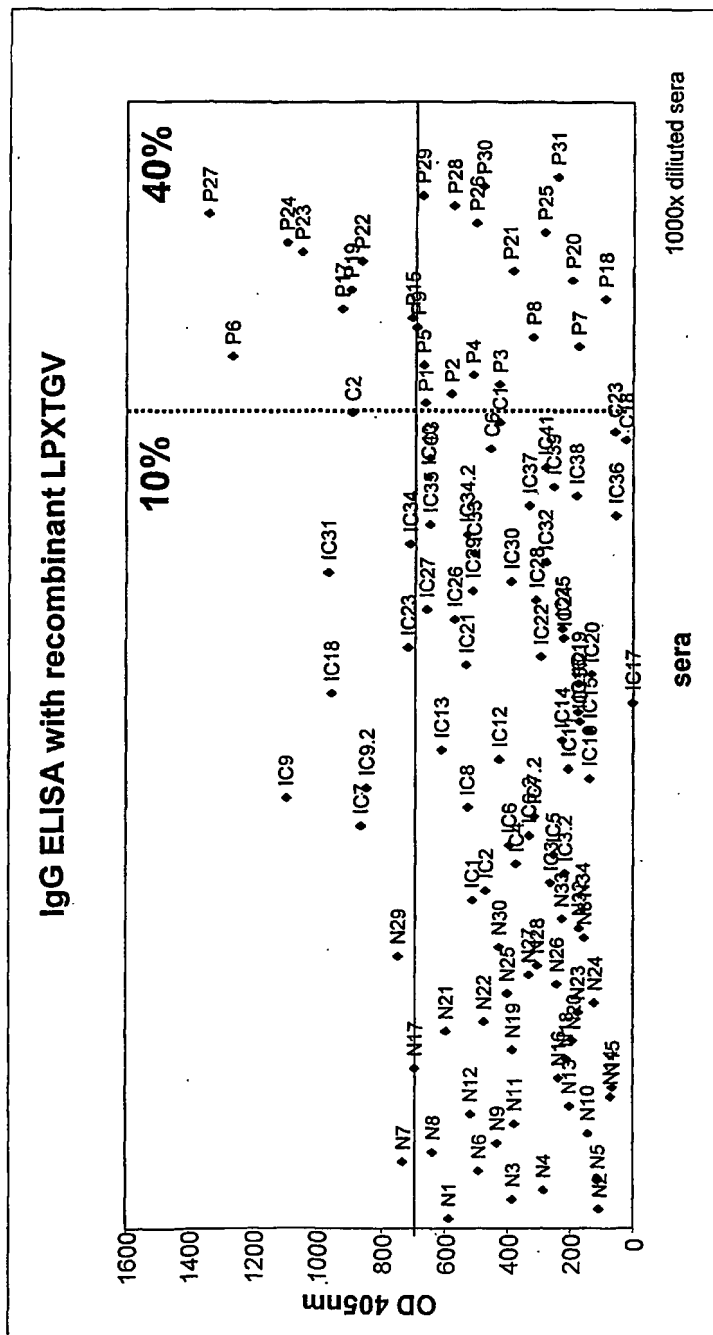


Figure 9

11/11

Surface staining of *S. aureus* (strain 8325-4 spa-) with purified anti-LPXTGV IgGs

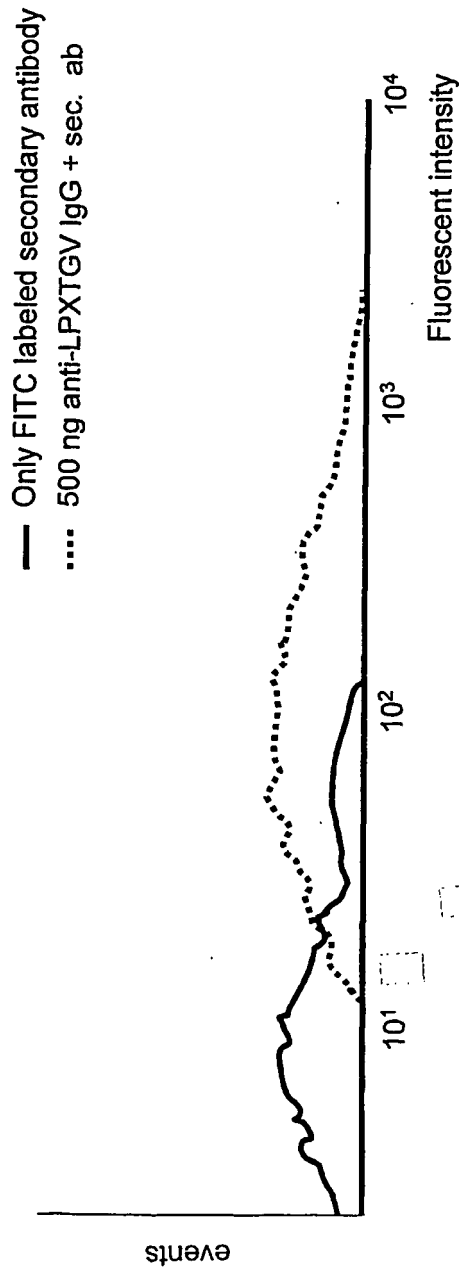


Figure 10



- 1 -

## SEQUENCE LISTING

InterCell Biomedizinische Forschungs- und Entwicklungs AG  
Cistem Biotechnologies GmbH

R 39035

Priority: Austrian Patent Application No. A 130/2001 of  
26.01.2001

Seq.ID Nos. 1-598

Organisms: *S.aureus*; *S.epidermidis*

1.	<p>atgaacaacagcaaaaagaatttaaatcattttattcaattagaagtcactaggg ggtgcatctgtagcaatttagtacactttttatttatttaagtgtcaaatggcgaaagcacaagca gcagctgaagaaacaggtggtacaaatcacagaagcacaacccaaaactgaagcagttgca agccaacaacacatctgaaaaagctccagaaactaaaccagtagctaatgctgtctca gtatctaataaagaagttgagggccctacttctgaaacaaaagaagctaaagaagttaaa gaagttaaagcccttaaggaaacaaaagaagttaaaccagcagcaaaagccactaacaat acatatcttattttgaatcagggaacttagagaagcgattaaaaacccctgccataaaagac aaagatcatagcgcaacaaactctcgccaattgattttgaaatgaaaaagaagatgga actaacagctttttatcattatgcaagttctgttaaactgctagagttattttcactgat tcaaaaccagaattgaattaggattacaatcaggtcaattttggagaaaatttgaagtt tatgaaggtgacaaaagttgccaattaaattagttatcatagcagatactgttaaagattat gcttacattcgcttctctgtatcaaacgggaacaaaagctgtttaaattggttagttcaaca cacttcaataacaaaagaagaaaaatacagattacacattaatggaatttcgcacaaccaatt tataacagtgagataaattcaaaactgaagaagattataaagctgaaaaattattagcg ccatataaaaaagcgaaaacactagaagcaagtttatgaattaaataaaattcaagat aaacttctcgaaaaattaaaggctgagtagaagaagaatttagaggatacaaaagaagct ttagatgagcaagtgaaatcagctattactgaattccaaaatgtacaaccaacaaatgaa aaaatgactgatttacaagatacaaaaatattgttttatgaaagtttgagaataacgaa tctatgatggatacttttgttaaacacccctattaaaacaggtatgcttaacggcaaaaaa tctatggtcatggaaactactaatgacgattactggaaagatttcatggttgaggtcaa cgtgttagaactataagcaagatgctaaaaataactagaacaattattttcccatat ggtgaaggtaaaactctatatgatgctatcggttaaagttcacgtaaaaacgattgattat gatggacaataaccatgtcagaatcggtgataaagaagcatttacaagaagcgaataccgat aaatcacaacaaaagaacaaacagataactcagctagaagaaggaagctactccagctacg cctagcaaaccaacaccatcacctgttgaaaaagaatcacaaaaacagacagccaaaaa gatgacaataaacaattaccagtggttgaaaaagaagaatgacgcattctagttagtcaggt aaaggcgttaacgcttgctacaaaacaaactaaagggtgaagtagaatcaagtagtacaact ccaactaaggtagtatctacgactcaaaatgttgcaaaacaaactgggtcatcaaaa acaacaaaagatgtgttcaaaacttcagcaggttctagcgaagcaaaagatagtgcteca ttacaaaaagcaaacattaaacacacaaatgatggacacactcaagccaaaacaataaa aatacacagaagaaataaagcaaaatcattaccacaaactggtgaagaatcaataaagat atgacattaccattaatggcattattagctttaagtagcatcggttcattcggtattacct agaaaacgtaaaaactaa</p>
2.	<p>atgagaaatatagagaatctaatacccgagattcagttgatcactttttcttagtgcat aaagctacacaggggtgtaacagcacaaggtaagatttatatgacattacatttgcaagat aaaagtggtgaaattgaagcgaaattttggacggtacaaaaaatgatatggcaacaatc aagcctgaagaaattgtacatgttaaaggtagacatcataaactatcgcggaataaaacag atgaaagtcacacaaatttagactagcgacaaactgaagatcaattaaaaacagaacaattt gtagatggtgcacctttatcacggcgagaatacaagaagagatttctcattatttgcta gatattgaaaatgctaatttacaacgtatcacacgtcattttattgaaaaaatcaagaa cgattttacacatatccagctgctagttctcatcatcataactttgcagtggtgcttaagc tatcatgtattaacgatgttacgtattgcaaaatcaattttgtgacatttatccattgtta aacaagaatttgttatatagtggtattattttgcatgatattggtaaagttagagaattg agtggtcctgttgcgagctcgatagcagtgaaaggttaacttattaggacacatctcgatt gagagtgatgaagtagttgaagcagctcgtaattgaacattgaaggagaagaaatcatg ttgttaagacatatgattttatctcatcatggttaaggttagagtaggttctccaaaactg ccatacttaaaaagaagcagaaattttatgctatatcgataatcagatgctagaatgaat atggttgaaaaggcatataaaaaaactgacaagggtcagtttacagataaaatatttgggt cttgaaaaatcgtagattctacaatcctgaatcactcgat</p>

3.	<p>atgaacaacatcacccaaaattaggtctttctattctattagaaaaaacaactctaggc  gttgcacgtcggtcattgtcagtagcactatcttttaattactcttcaacatcaagcacaagca  gcagaaaaatcaaaatcttcagataaaatctcggaaaaatcaaaataaataatgcaactaca  actcagccacctaaggtatcaaatcaaacacacactgctacgcaaccagcaaacactgcg  aaaaactatcctgcagcggatgaatcacttaaaagatgcaattaaagatcctgcattagaa  aataaagaaacatgataggtccaagagaaacagtcactttccagttattagataaaaaa  aatgaacgcagtagctactcactttttcagcatcaagatccagcagatgtgtattacact  aaaaaagaaagcagaagtgaatttagacatcaatctgcttcaacatggaagaagtgttgaa  gtctatgaaaaaacaatcaaaaattgcccagtgagactgttatcatatagtcctgtaccagaa  gacctgcctatattcgattcccagtttcagatggcacacaagaattgaaaaattgtttct  tcgattcaaatgtatgtaggagaagaacaaattatgattatactaaattagttattgtct  aaacctatttataacgatccttccactgttaaaatcagatacaaaatgatgcagtagtaacg  aatgatcaatcaagttcagtcgcaagttaatacaaacacagcaatatacttaatacaaaat  acatcaacgatcaacaatgctaaataacacccagcaggcaacgacaaatagagtcacact  gcacaacccaataatcgtaacgaatgcagatcaagcgtcaagccaaccagctcatgaacaa  aatttcaatgggtaataactaacgataaaacgaatgagtcaggaatcagtcggatgttaat  caacagtatccaccagcagatgaatcactacaagatgcaattaaaaacccggctatcatc  gtataaagaacatacagctgataaattggcgaccaattgattttcaaatgaaaaatgataaa  gggtgaagacaggttctatcattatgctagtagtctgtgaaccagcaactgtcatttttaca  aaaaacaggaccaataatgaattaggtttaaagacagcttcaacatggaagaattttgaa  gtttatgaaggtgacaaaaagtaccagtcgaatttagtatcatatgattctgtataaagat  tatgcctatatctgtttcccagttatctaattggtagagagaagttaaaattgtgtcatct  attgaatatggtagaacatccatgaagactatgattatacgttaattggcttttgcacag  cctattactataaaccagacgactatgtggatgaagaacatacaatttacaataaattta  ttagctccgtatcacaagctaaaaacgttagaagagaagttttagaattagaaaaaattta  caagagaatttgccagaaaaatataaggcggaatataaaaaagaatttagatcaaaactaga  gtagagtttagctgtatcaagtttaaatcagcagtgacggaattgaaaaattgtacacctaca  aatgatcaattaacagatttacaagaagcagcttttgttttttgaagtgagaagaaat  agtgtacagttatggacggctttgttgaacatccattctatcacgaactttaaatgggt  caaaaatctgttagtgatgaaaaacaaaggtgacagttactggaagattttaattgttagaa  ggtaaacgtgtcactactgtttctaaagatcctaaaaataattctagaacgctgattttc  catatatacctgcacaaagcagtttacaatgcgattgtttaaagtcgtgtggcaaacatt  gggtatgaaggtcaaatatcatgtcagaattataaatacaggaatatacaaaaagatgat  gatacatcacaataaacacagtggaacgcgtaaatgtacaacaggacagaaggttaag  gttgcgtgatacagatgtagctgaaaaatagcagcactgcaacaaatcctaaagatgcgtct  gataaagcagatgtgatagaaccagagtcgtgacgtgttgaagatgctgataataatatt  gtataaagatgtgcaacatgatgttgatcatttatccgatatgtcggaataataactacttc  gatcaaatgatgtttaaagaagatggatactcaaatggcaagatactgatagaagatgtg  gataaagatgccgataatagcgttggtatgtcatctaatgtcgatactgataaagactct  aataaaaaataaagacaaagtcatacagctgaatcatattgccgataaaaaataatcact  ggaaaaagcagcaaaagcttgacgttagtgaacaaaaattataataacagacaaagttact  gacaaaaaaacaaactgaacatctgccagtgatattcataaaactgttagataaaacagtg  aaaaacaaaagaaaaagccggcacaccatcgaaagaaaacaaacttagtcaactcaaaatg  ctacaaaaaactggagaacaaacttaagccaatcatgggtgggcttatatgcggttatta  ggtagttagctttattcattcctaaattcagaaaagaatctaaa</p>
4.	<p>Atgtcagattttaaatacagatcattctacaacaacacatagccaaacacctagatac  Agaagacctaaatttccatggttttaaaccagtcacgttgcattgattgctggaattatt  Ggttcacttctagtagtcttggtataggcaaaatttaaatagtagaatttttaataaagat  Ggttcaactgttcagacaacaaataataaaggtggcaatcaattagacgggtcaaaagcaag  Aaattcggtaccgttcatgaaatgataaaatctgctcccctacaattgttggagttatt  Aacatgcataaaagcatcaagtgtagacgacttataaaaggcaaatcatctaaaccatct  Gaagctggagtaggttccaggtgttatctatcaataaacaacaaatcagcttatacgtt  Acaacaacatcatgttattgtatggcgcaaatgaaatagagtcgaattacataataaaaaa  Caagttaaagcgaattagttggtaagatgcagtaactgatattgctgtacttaaaatt  Gaaaaacaaaaggtattaaagcgattcaatttgccaaactctcaaaagtcacaaactggc  Gatagcgtattcgcaatgggttaaccattaggattacaatttgctaactctgttaacatct  Ggttatcatcttcagcaagcgaacgtacgattgacgctgagacaactgggtggcaatacaaaa  Gttagcgttcttcaaacagatgctgctatttaaccaggttaactcaggtggcgcattagta  Gatatttaattggtaatttagttggtatttaactcaatgaaattgctggcacacaaagttaa  Gtatcgggttgctatttccaagtaagtaagttaaagtaacaaattgaacaaacttgtaaaa  Catggtaaaattgaccgccttcgattgggtattgggttaatttaattgaaagatttccct  Gaagaagagcgcgagcaactcactatgtagagaagacggtattttagtcgccaaagct  Gatagtgatattgatcttaaaaaaggtgatattattacagaatttgatggcaagaaaatt  Aaagatgatgttgatttaagaagctatttatgaaataaaaaacctgggtgaatcagtc  Actgttaccgttatccgtgatggtaaaacaaaaggttaagtgaaatttaaaacacaa  Aaagaacacccaaacgtcaaaagccgatcagaacgtcaatcacctggccaaggcgataga  gatttctttaga</p>
5.	<p>ttgatgattaatgaagagaaggtgtttattttgatatatctagataatgcggcamcgacg  aaagcatttgaagaagtgttagatacttattttaaagtaaatcaatcaatgtattataat  ccgaatagtcgcgataaaagctgggttgcaggcaaatcaattactacaacaagcaaaaacc  caaatatgcaatgatttaattcaaaaacaaattatgatgtgtattcactagtggtgca  actgaatccaataatcttgctttaaaggtattgcctatcgtaaattgatcacagcgaag  gaaataattacatccgtgttagagcatccgtccgtattagaggttgtaagatatttgga  gcacacgaaggtttaaagttaaatattgttagtgaagaagatggcagttataactta  gaacacttcaagaattaaatgtcagacaaagtcgggttagtaacatgtatgtatgtaaat  aatgttaactggacaaatcacgcctattccacaaatggctaaagtataaaaaattatcct  aaggcacattttcatgtagatgcggttcaagcatccggcaaaatttcaatggatctcaat  aacatagtagtatttagtttaagtgacacaaagtttaatgggtttaaaggacaaagcgct  ttacttgaataatcattcaaaatgttgaacaaactgtccatgggtgggtcaagaatatt  ggcgttgaagtggaacagtttaattggcaaatgatattgcaatgggttaaaggcagatgaag  atagctaatgaaactttgaagcattgaatgcatttggtagtgagtttaaatatgacgtc  cgtcaatttttaataaatacatggagtttatatttaattctcaactcaggttcacca  ttcgttttaaatatttagttttcctggcgtaaaaggtgaagtatttagtttaattgcttttca  aaatagacattatgatattcagacaaagtgcttggctatcaaacgtaataaatttaaat  gaagtattggctgcaatgggtattatcagacaaatctattgaaggtagataaagattatca  tttggggctactacaactaaagaagatatagcaggtttaaagaaattttatcatcatt  tatgaggaaattaaaggagttgctaaaa</p>

6.	<p>gtgaaccaacaacaggagaaaaacaacaacacgccaacaacaattaatccattaacggga  gaaaaagtagggcgaagtgaaaccaacaacagagtaacaaaagaccagtagatgaaatc  acacaattcgggtggagagaagtagccacaaggtcataaagatgagttcgatccaaactta  ccaattgacggtacagaagaagtaccaggttaaccaggcatcaagaatcctgaaacaggt  gaagtagtaacacctcgggtgacgatgtcacaaaacatgggtccaaaagcaggcgaacca  gaggttactaaagaagaataccattcgagaaaaaacgtgagttcaatccagacttaaaa  ccaggtgaagagaagtaacgcaagaaggacaaactggagagaaaaacaacaacgcca  acaacaattaatccattaacgggagaaaaagtaggcgaaggtgaaccaacaacagaagta  acaaaagaaccagtagatgaaatcacacaattcgggtggagaagaagtaccacaaggtcat  aaagatgagttcgatccaaacttaccatttgacggtacagaagaagtaccaggttaacca  ggcatcaagaatcctgaaacaggtgaagtagtaacaccaccagtagacgatgtcacaaaa  catgggtccaaaagcaggcgaaccagaggttactaaagaagaatccatatgaaactaaa  cgcgtattagatccaacaattggaaccaggttagtctgtataaagtagctcaaaaaggtgaa  aatgggtgaaaaaacaacaacaccaactacaattaatccattaacgggagaaaaagta  ggcgaaggcgaaccaacaacggaagtaacgaagaaccaatagacgaaattgttaactat  gcacctgaaattattctctcatggtacacgtgaagaattgatccaaacttaccagaaggt  gaaactaaagttatccaggttaaagatggcttgaagaatcctgaaactggagaattcatt  gaagaaccacaagatgaagtaaatcatcctggtgctaaagatgattcagatgaggacagc  gatttcagacgcagatagcgatttctgatgcagacagcgactcagacgcagatagcgactct  gatgaggacagcgattcagacagcgatagcgattcagattcagatagcgactctgatgcg  gacagcgattcagacgcagatagcgattcagattcagatagtgactctgatgaggacagc  gactcagacgcagatagcgactctgatgaggacagcgactcagacgcagatagcgattct  gattcagacagcgactcagacgcagatagcgactcagattcagacagcgattcagacgca  gactcagacgcagatagcgactcagacgcagatagcgactcagacgcagatagcgactc  gattcagattcagatagcgactctgatgaggacagcgatagcgattcagattcagacagc-  gactcagacgcagatagcgattcagacagcgattcagacgcagatagcgactctgatgcg  gacagcgactcagacgcagatagcgactcagacgcagatagcgattcagattcagacagc  gactcagattcagacagcgatagcgattcagattcagacagagactcagacgcagatagc  gactcagacgcagatagcgactcagattcagacagcgattcagacgcagatagcgattca  gattcagatagtgactctgatgaggacagcgattcagacgcagatagcgactcagattca  gacgcagatagcgattctgatcagacagcgactcagacgcagatagcgactctgatgcg  gacagcgactcagacgcagatagcgattctgatgacagacgactcagacagcgatagc  gattctgattcagacagcgattcagacgcagatagcgactctgatgaggacagcgattca  gacgcagatagagatcataatgacaaaacagataaaaccaaataataaaggttaccagat  actggtaatgatctcaaaaataatggcacattatttgggttcactattcgctgcgcttggga  ggattattcttagttggcagacgtcgttaaaaacaaaaataatgaagaaaaa</p>
7.	<p>gtgaagtcattgaagacggtgattgggatgaataataaggagcatattaaatctgtcatt  ttagcactactcgtcttgatgagtgctgatttgacatatatggatatggaacttttctcct  gatattgcaaatgtcgacaatacagatagtaagaagagtgaaacgaaacctttaacgaca  cctatgacagccaaaatggatacaactattacgccatttcagattattcattcgaaaaaat  gatcatccagaaggaacgattgcgacggtatctaattgtgaataaactgacgaaacctttg  aaaaataaagaagtgaaagtcggtggaacatgttcgctcgatcataacttgatgattcct  gatttgaacagtgattttatattatcgtattttacgtatgatttacggttatcaacatat  cttggctcaagtagtactgaacatgaatgcaagaagtaccaaatacatttcaatttcaatcgttg  gtcatagatcatgatgctgatgataatcgtgctttatgctataagcaaaagatcgccac  gattacgtaaaaattaaacaactacaacgaaaaatgacattttttagatgcatagcagca  gtgaaaaaagatagcaaccatacacagatatcatcacaacaaagatacaattgatcgt  acgacgcagtggttttgaccaagtaaacctgaaaagttaaaaacatatcgcatggatttt  aacacgattagtggttgagaaaaatgaatgctatactatttgacgattcaaccatcgttcgt  agttcaaaagagtggtgttacaacctacaacaataatacaggtgtcgcgaaactataacgat  aaaaatgaaaaatatcattataaaaacctgtccgaagatgaagcgagttccagcaaaatg  gaagaaacgattccaggaacctttgattttatataatgggtcatggtggtttcttaaacgaa  gacttttagattggttagtacgaataatcagtcaggcgagttacatatcaacggttctct  aatgggttatccaacggttaataaagaaggttctaatcaaatcaagtcacttggggtgaa  aaaggcgtctttgactatcgtcgttcgttattacgcaccgacggtgttttaaatagtgag  gataataaaatcggttccgaaattagagtcgttacggttcaagcttagcgaacaatagtgat  attaattttgaaaaagtaacaaacatcgctatcggttacgaaatgcaggataattcagat  cataatcacattgaagtgacagattaacagtgaaactcgtaaccgcttggtatgtagaatat  gatggcgaatggtatgtttataacgatgggaggtcgaa</p>

8.

atgagtataaaagacagaaagcatttcatgcagcgttagcaaacgaaaaacaagagtaaga  
ctttataaattctgggataaaattgggtataaattccggaattcaagaataagaattgttcaa  
tttatggggctaccattatttagtcatagtttagtgagtcagaataatacaaaagcttaag  
ataaaataatgcagggtacagcagctgaaatacgcgcgggttatttgggtggtcttcacggt  
aaatattgtgatcagctacagcagcttttgcggtcttgatgaccatttaactcttgaatt  
aacacacaaagtgaacacagtaggtaatacaaaactcaacgacaatcgaagcatacaatca  
acagccgatttccacaagtgtaacgaaaaataagtagttctcggtacaacatcaaaatagtg  
acagctccaagtgaaaagttgaagaaactctgcacataataagcatacaagataactcaa  
caagagaataatgacatctacatcagaatacaacatctcaagaatactacatacaagttct  
gatactaaatctgtagcttctcaactcaagtcacgaacaaactaatatcatcaacaaat  
caaaagtactgcatcaataacagcttcaacaagcacaacgcgaattctcggtcaacttaac  
aaaactagcacacgctcaactagtcacccgcaccagtataaacttcgaacttctagctgctt  
gctatgtcaacatttgcgtcagcagcgcagacaaccgcagtaactgctaatacaattaca  
gttaataaagataacttaaaacaatatatgcacaagctcaggttaaatgctcatctgatctaa  
agtcacgggtattgtgacgttaaacacaggtgcatcacagccaaaaggtgctattacatat  
ggaacacagttatgactctataaataagattttcattttctggaanaagtaaaattagggtaa  
aaattatgaagggcattgaaattgggtggagattgggttcggttttgcctttaccaggggtg  
ttaggtgaaacagggtttaaaccgtgcgcagtaggtatttggtggtcttaagttaacgcat  
ggcttcaaattggtactgctacatacatcttaaccaaatctcagctgcaaaaggcgaat  
gctgaccactctaatgtagctgtggagggtgcgtttggtgcatctgttcaacaacagatag  
tatggttcttgccacaacgtatatactcaagttcaacagttacgaattgctgcggaattaaat  
gttcaactctcaaaataacacgttctcaagattttgatattactaataatggtgatcaaaag  
gttatgctgtccaaattgcaggtccaactggacagcttaacatttcagattggattgcg  
aaaagtggtacgacaacttttcatatactaatgcacgctcaaacaggtggcgcgacaatt  
ttacaacaagtacaaatttgaacatttcgaatatacagagctctgctgttacacaagtgaga  
tacgttgatgtacaacacaggtaaagatatatttccaccaaaaaacatttcaggaattgtt  
gatcaacgctgtgacaactcgataactcagcaattctgcattgactgtctaaaggtataactac  
acgtccgctgcagtagttctatctgcgtcaacttataatgatcaaaaataaaactgtaaaaat  
acgaattctgtggacaactcagtgacatatattttactgatgtaaaagcaccactgttaact  
gtaggcaatcaaaccttagaagtggtgtaaacaaatgaatctattgtattgactacaacg  
gataattggtatgggactgtgacaattacagttacaggtattaccaagcggattaaagttac  
gatgtgtcaacgaattcattcatctggggacaccaaaaaatttggtcaatcaacagtgaca  
gttgtgtctactgcacgaacaaatacaaaactgcagcacaactttacaataaatgttgtg  
gatgcagcagcagcaacagtgacacaaataggagatcaatactcaagaagtgatttaccaca  
atatccccgattaaaaattgctacgcgaagtacaagtggaattcggtgacgaattacagtg  
actgattgacctcgggactaacatttgatagttacaaataactattagtggttaccacca  
acaaacattggtacaagttactatatcaatcggtttctacagatgcgagcggtaacaaaacg  
acgacaacttttaaatatgaagtacaacaaataagctaggtgattccgtctacaacatca  
ggaagttacacaacaaatctcaaaagtgtgaacaaagtaagctgactcaaaagtgtcatca  
cgaagttacatcaggtatgattgtggtattctacatcagcttagctacctcgaaatcgacaagt  
gttagctctatctgattctgttagtgatctcaagtcatttaagcagctcgaaagtaaatgt  
gtatcaagctcaacaagcacaagtttagtgaattcacaagtggtatcatcaagctatgcg  
gattcagctagtaataacaactcatttaagcgattctatttcaaacctctagcagttactgaa  
aaatcgaagttctatcaacaagttacatctgattcatttgcgtacatcaactcactcagtt  
gactcatttaagtattgattacatcaggaagctgtctaagttacaacaaagttatacaagagt  
atatcagggtcgctgattacatcagcatcatttaagtgcagctacagctgaatgcgaatg  
atatacaacatcatgagcggcgtgcagctagcacaactcggactctatagttattcaaatgca  
atagccaactctcaaaagtgcgtcaaacagcaaatcagatttcaacagttacatcaatatca  
taagttacaagtgatttcaaaatcgatgagttacatcagaatcattgagcgtattcgacgagc  
acaagtggttctgtttcttgattcacaataagcatagcagttacacaagtgcttcaaacag  
acatcagactcgatgagttacttcagagatagtagtgactctataagttacaagttgggtca  
ttatctgcatcagacatgaataatcaatgtccgtaagtagttcaattgagcagctctcagtca  
ggtagttacatcagaattataagttatgtcacaacagttacatctgattctgtatagttagttca  
ttatcacaagaacttagtctcaatcaggttcaacaagttacataacgctgcagaagtgcttca  
gtgcgttaactcggaaatcacaagtagctgtggttcaatagttgcgaagtcaatccgatttca  
atgagcatatcaacgtcggttagtgattcaacagagtgatagcaaatcagatcactgca  
tcaagttgaatcaaatacaaaagtccttctcagcagcacatttggttcggttaagttactgc  
acatcggttaagtacaagtaattcagaaagttacatcaacatcttagttgatttccacaagtt  
ttaagtacatcagctctgattcattaaagtgaatcaacgtcaacgagcagctactataagt  
gaagcaatatctgctctcagagcagcagctttatcatataagttgaatcaaatagttactagc  
gattcagaatcacaagtgctactctgccttttaagtgtaatttaagttgaaagttacgctt  
gaatcagaatcagagttcagttgagttatgcagaagtgagattcgttacttaccagacgt  
acatcagaattctggttagcatatcaatcatcaagtaattcaaacagttggttagtcagcttc  
atttcaacatcgacaagattcagttgaattcaacgtcaaggtttaagagcgagagtttcttca  
acatcagttagtttgcacagcagtaagtttgtctgactctcaagtttgcataacttca  
ttaagttgatttccacaagttgataagttgattgatttcaattagattcaaatgttcgacaagtt  
gttcaatcagttacaagtaaatctgatttccattagattacatcacaatcaatttaagttggtt  
caaagtgaaagtaattcggattccaactcaattgattcagataagttatgtctcaatcaactca  
ggaagttacaagttacgtcacaagcaggtacaagtttgcgtgactcaacgagttacatttca  
cttaagtgcttcaattgaattcaaaagcgagtagactcacaactcagcagcaaaagttgcttca  
aactcaacaagttacaacgacgagcggaatccgatttcaacaagcacaatcattatcaacagtt  
cagttacaacagcaaaagtgaattccatccatcgacatcaacgtcactaagcgtttcaacaagt  
atattcaaaagttcaggttcaaatcaggttcggtaagcacaagctcaggtcatttaagttgttca  
gagttgaaattctgatttcaacaagattcttcaacaagttcaggttagttcaacatcagaagtt  
cgttcaacatcactcagttgactcacaacagttacaagttacactcaggtcagcaggtcagttca  
gattcgtctcagttactcagcaagcagaagttgaattccgatttgcgttcaacatctttaagt  
cttcaactatctgcgtcaatgcgaagcagttgaattccgatttcaacaagcagatcagttacat  
ttaagttgattcgttaagtacatctcaacttcaaacccgattctgcacattgcaagtttattct  
acatcgttgaagtacatcagattcttcgttcaaacatcagaagttacaagttgatactcgatttca  
acatcaacatcatttaagcgtattcaaaagctcactcaagaagttacaagttcagttcagttac  
gcaagttacatcaactcaacaagttgcgtctgattacatcagttcagttcagttacttcg  
atgcgtacaagttactagttgattcacaagttatgtcgttttcgacaagttacatcaacaagt  
atgagttgattcaacgctcattatctgattggttttagttgatttaaacatcagactcaacaagt  
cgaggtacatctggttcgattagttgtgtcttatctgatttaagttatctgcagactacatcaca  
acatccggttagtgaaagttaagtgcaagcaacatctctgatttcaacaagttatgtcagaatt  
gtaaaattgattcagaagaattgtaagtgaaattcaattctgaaagttcagctttaaactgagtt  
gggttcaacaagttgcagttgattcttcggtctattgagcgtctcaacgtgatttaagaaataca  
gaaggttgaagcgaagttcaagttcttagttgttcacaaattcagttgagtcagttcaggttaagc  
caacgcgattctgctatcattaagttgattcgcagctcctaagaagttcagaagaagcgtgagtt  
gaacttgattctataagttgattcaaaatacaaaagttggttcgacttcaacaagttacatctc  
ggttcttagttagacttcaacatcttaagttggttcagaagaagcgttaagcaggttactcgtct  
ctaaagttgattcaatataagttagttatctactagttacaaggtgactccgcatcttaagtt  
ggatcaaatctcttaagttggttccacaagttcttagcatttcggaattcttaattgattctt

aaatcattgagtagctcgcaaagtatgagtggtcagaatcaacgtcaacaagtggtgagc  
gattcgcagtcgaagtcacaagtaatagtcaatttgactctatgagcatcagtgcatca  
gaaagcgactcaatgtctacaagtgattcgtctagcatcagtggtcaaatccaacgagt  
acatcactttcaacatctgactcaatgagcgggaagcgatcagtttcaacatcgacaagt  
ttaagtgactcaatatcaggtccaacaagtgtaagtgactcgagctcaacaagcacatct  
acatcattaaagtgattcaatgtcacaaagccagtcacaagtcagaagtgcatctgggtcc  
ttaagtacatcgatatcaacatcaatgtcaatgagtgctagtacatcgatcacaagc  
acatcgggtcgacatcattatcaacatcagacagtcagtgattctacttcaataagt  
atcagtggttcacaaagtacagtgaatcagaatctacaagtgattcaacttctatcagt  
gactcagaatcattgagtacatcagattcagactcgacatcgacaagtcacatcggaactca  
acaagtggttcaacttcaacaagcatatctgaatcattaaagtacgtctgggttcagggtca  
acgagcgtatctgactcaacatcaatgagtgaaatcaattcatcgagtggttcaatgtca  
caagacaaatccgactcaacatcaattagtgactcagaatcagtggtcaacaagcacatca  
acgtcattgagcacatccgattcgacaagcacatccgaatcactgagtacatctatgtct  
gggtcacaagcatttctgactcaacatcaacaagtatgtccggctcaacaagtacatct  
gaatctaactcaatgcatccgtcagactcaatgagtgatgcatcactcacagcacgagc  
acatctcgcttatcaagtgaagcaacaacgagcagtgagtgaaatctcagtcacattaaagt  
gcaacatctgaagtgaactaaacataatggcacaccagcacaaagtgaagaaagattgcca  
gatcacagtgactcaataaaacaaaatggattactaggtggcggttatgacattattagtt  
gggttaggtttaatgaagagaaagaaaaaagaagatgaaaatgatcaagatgattctcaa  
gca

9.	<p>atgcctaaaaataaaatttttaatttatttgcctatcaactacgctcgtattacacttcta  gtttcaccctaccgcttatgctgatacaccctcaaaaagatactacagctaagacacatct  catgatccaaaaaatctaatgacgatgaaactcttaaggatactacaagtaaaagattt  gataaagcagacaaaaataatacaagtaaccaagacaataacgacaaaaaatttaaaact  atagacgacagcacttcagactctaacaatatcattgatttttttataagaatttacca  caaaccaatataaaccaattgctaaccaaaaataaatagatgataattactcatttaaca  acttcaatccaaaacttattcaattttaaattcggatatttctgattacgaacaacctcgt  aatggcgaaaagtcaacaattgattcgaataaaaaacagtgaacaatagcatcaaaaatgac  actgatacgcgaatcatctaaacaagataaaagcagacaatcaaaaagcacctaaatcaaac  aatacaaaaaccaagtacatctaataagcaaccaaattcgccaagccaacacacactaat  caatcaaatagtcacaccagcaagtgcgataaaagcaaatcaaaaatcttcacgaaagat  aatcaatcaatgctcagattcggcttttagactctattttggatcaatacagtgaaagatgca  aagaaaacacaaaaagattatgcatctcaatctaaaaaaagacaaaaatgaaaaatctaat  acaaagaatccacagttaccaacacaagatgaattgaaacataaatctaaacctgctcaa  tcattcaataacgatgttaatacaaaaggatacacgtgcaacatcattattcgaacacagat  cctagtatactcaaatgatgatagcggacaatttaacgttgttgactcaaaagataca  cgtcaattgtcgaatcaattgctaaagatgcacatcgcatgttggtcaagataacgatatt  tatgctgtctgcatgattgccaagcaatcttagaatctgactcaggtcgtagtgtctta  gcttaagctaccaaacctaatttattcggatcaaaaggtgcttttgagggaattctgtt  ccttttaacacattagaagctgatggtaatactgtatagtaattatgctggattccga  aaataccaagcagcaagaatacactaaaagattactctgaccttattaaaaatggtatt  gatggcaatcgaaacatttataaacacacatggaaatcggaagccgattcttataaagat  gcaacatcacacttatctaaacatgctacagatccaaactatgctaagaaattaaac  gattattataaacactatcaatttaactcagtttgacgatgaacgcagtcagcagatttagat  aaatagaacgttctatcaaggattatgatgatctcatcagatgaattcaaacctttccgt  gaggtatctgtagtagtgccatctccacatggccaatgtacttggtacgtatataacgt  atgaaacaatttggtacatctatctcaggtgatttaggtgatgcacataattggaataat  cgagctcaataccggtgattatcaagtaagtcatacaccaaaacgtcatgctgctgtgtta  tttgaggtcggaacatttggtgcagatcaacattacgggtcatgtagcatttggtgaaaaa  gttaacagtgatgggtctatcgttatttcagaatccaatgttaaggattaggatcatt  tctcatagaactatcaacgcagctgccgctgaagaattatcatatattacaggtaaa</p>
10.	<p>gtgaggaaattttcaagatagcatttacaagtatggcagcatttaacctgttgagcact  ttatcaccagcagcatttagcgattgattcaaaaaataaacagctaattctgatattaaa  tttgagggtgactcaaaaagagtgatgcggtcaaaagcattaaaagaattgcctaaatccgaa  aatgtaaaaaatatttatcaagattacgctgttactgtatgtaaaaactgataaaaaagga  tttacgcattatacattgcaaccgagtggtgatgggtgttcacacctgacaaaagaagtg  aaagtacacgcagacaaatcaggaaaagtcgttttaataatggggatactgatgcgaag  aaagttaagcgaacgaataaagtgaacattaaagttaagatgacgcagccgacaaagcattt  aaagcagtttaagattgataagaataaagcgaaaaaatcttaaaagataaagtcattaaagaa  aacaaagttagaattcgatgggtgacagtaataaaacacgtttataatgttgagtttaataca  gtgacaccagaaatttcacattggaaggttaaaattgatgtcacaactggcgaaatttta  gaaaaaatgaacttagttaagaagctgcagaaactggtaaaaggaaaaggtgacttggc  gatcaaaaagatatcaatatcaatagatttgacgggtggatttagcctagaagatttaacg  catcaaggtaaatatcagcatttagcttttaatgatcaaacaggtcaagcaacattgatt  actaatgaagatgaaaactctgtaaaagatgagcaacgtgctggcgtagatgcaaatat  tacgctaaacacacatatgattattacaagacacatttggtcgtgaatcatatgacaac  caaggtagtccaattgtttcattaacgcaggttaataactacggtgggtcaagataacaga  aataatgcccgcagtgatgggtgacaaaatgatctatgggtgatgggtgatgcacattc  acaagtttatcgggtgcaaatgacgtatgacacacgaatttaacacacgggtgtgacacaa  gagacagcgaacttagaataaagaccagtcagcgctctaaatgaaagcttttcagat  gtttttggatactttgtagatgacgaggatttcttaatgggtgaagatgtctacacacct  ggaaaagaggagacgcttttacgcagcatgtcaaaaccagaacaaatttggtcaaccagct  catatgaaagactatgtattcactgaaaaagataatgggtggctacatacgaattctgga  atttcaaataaaagcagcttaaacgtgattcaagcaatagggaatctaaatcagaacaa  atttactaccgagcatttaacggaatacttaacaagtaattcaaaccttcaagattgttaa  gatgcattataccaagcggctaaagatttatatgacgagcaaacagctgaacaggtgat  gaagcatggaatgaagtaggcgtggag</p>

11.	<p>ttgaaaaaagaattgattatttgcgaataagcagaataagatttcgattagacgtttt  acagtaggtaccacatcagtaaatagtaggggcaactatactatttgggtagggcaatcat  caagcacaagcttcagaaacatcgacagatataacgcaatcttcgaaaaataatgcaagt  gcagattccgaaaaaacaatatgatagaacacacctcaattaaatacaacggttaagt  acatctgattattagtgcaaaacacaacagtggaatgtagatagcacaacaaaacaaatg  tctacacaacagagcaataccactacaacagagccagcttcaacaaatgaaacacctcaa  cgacggcgaattaaaaatcaagcaactgctgcaaaatgcaagatcaaacgttctctcaa  gaagcaaatctcaagtagataataaaacaacgaatgatgctaatagcatagcaacaaac  agtgagcttaaaaaattctcaaacattagatttaccacaatcatcaccacaacgatttcc  aatgcgcaaggaactagtaaaacaaagtgtagaacgagagctgtacgtagtttagctgtt  gctgaaccggtagtaaatgctgctgatgctaaagggtacaatgtaaatgataaagttacg  cgaagttaattcaagttagaaaaagactacatttgacctaatcaaaagtggtaaacacattt  atggcgggcaaattttacagtgacagataaagtgaatcaggggattattttacagcgaag  ttaccagatagtttaactggtaaatggagacgtggattattcttaattcaaaataatcagatg  ccaattgcagacattaaaagtacgaatggcgatggttagctaaagcaacatatgatattc  ttgactaagacgtatacatttgctctttacagattatgtaataataaagaaaaatattaac  ggacaattttcattacctttattttacagaccgagcgaagggcacctaaatcaggaacatat  gatgcgaattattaatttgccggatgaaatgtttaataaaaaattacttataactatagt  tcgccaattgcaggaatttgataaaacaaatggcggcaacattttcttcaaatatttggt  gtagatcacagcttcaggtcaaaacacatacaagcaaacagattttgttaaccttaagcaa  cgagtttttaggtaaatcgtgggtgtatattaaagggtaccaagataaaatcgaagaaagt  agcgttaagtaagtgctacagatacaaaactgagaatttttgaaagtgaatgatacattc  aaattatcagatagctactatgcagatccaaatgactctaaccttaaaagaaagtaacagac  caatttaaaaaatagaatctattatgagcatccaaatgtagctagttataaatttggtgat  attactaaaaacatatgtagttatagtagaagggcattacgacaatacaggttaagaactta  aaaaactcaggttattcaagaaaaatgttgactctgttaacaaatagagactacagttttc  ggttggaaacaatgagaatgttgtagcttatgggtggggaagtgtgtaggtgattcagca  gtaaattccgaaagaccacactccagggcgccgggttgaccagaaccaagtcagagacca  gaaccagaaccaacgcccagatccagaaccaagtcagagccagaacccgaaccaagccca  gacccggattccggattccgattcagacagtgactcaggctcagacagcagactcaggttca  gatagcagactcagaatcagatagcagattcggattcagacagtgattcagattcagacagc  gactcagaatcagatagcagattcagaatcagatagcagactcagattcagatagcagattca  gattcagatagcagattcagattcagatagcagattcggattcagacagtgattcagattca  gacagcagactcagaatcagatagcagactcagaatcagatagtgagtgagttcagacagtg  gactcggactcagacagtgattcagactcagatagcagattcagactcagatagcagattca  gattcagacagcagactcagattcagacagcagactcagactcagatagcagactcagactca  gacagcagactcagattcagatagcagattcagactcagacagcagactcagactcagacagc  gactcagactcagatagcagactcagattcagatagcagattcagactcagacagcagactca  gattcagatagcagattcggactcagacagcagattcagattcagacagcagactcagactcg  gatagcagattcagattcagatagcagattcggattcagacagtgattcagattcagacagc  gactcagactcggatagcagactcagactcagacagcagattcagactcagatagcagactca  gactcggatagcagactcggattcagatagcagactcagactcagatagtgactccgattca  agagttacaccaccaaataatgaacagaaagcaccatcaaatcctaaaggtgaagtaaac  catttcaataaggtatcaaaacacacaaaactgtagctttaccagaaacaggagataaag  agcgaacacacaaatgcaactttatttggtgcaatgatggcattattaggatcattacta  ttggttagaaaaacgcaagcagatcataaagaaaaagcg</p>
12.	<p>atgaaaaagacaattatggcatcatcatttagcagtggttaggtgtaacaggttacgca  gcaggtacaggacatcaagcacagctgctgaagtaaacgttgatcaagcacacttagtt  gacttagcgcataatcaccaagatcaattaaatgcagctccaatcaaaagtgggtgcatat  gacatccactttgtaaaagatgggttccaataataacttcaactcaaatgggtactacatgg  tcatggagctatgaagcagctaatgggtcaaaactgctgggtttctcaaacgttgagggtgca  gactacactacttcatacaaccaaggttcaaatgtacaatcagtaagctacaatgcacaa  tcaagtaactcaaacgttgaagctgtttcagctccaacttaccataactacagcacttca  actacttcaagttcagtgagattaaagcaatggttaactcaggggtgctactgggtcatca  gcagctcaaatcatgggtcaacgtactgggtttcagcttctacatgggtgcaatcatc  gctcgtgaatcaaatgggtcaagtaaatgcttacaacccatcaggtgcttcaggtttattc  caactatgccaggttgggttccaacaacactgttgaccaacaaatcaacgcagctgtt  aaagcatacaagcacaaggtttaggtgcttggggattc</p>
13.	<p>ttgggaggatatttaattatgaaaaaaatcggttacagctacaatcgctacagcaggactt  gccactatcgatttgcaggacatgatgcacaagccgcagaacaaaataacaatggatat  aattctaattgacgctcaatcatcacagctatacgtatacaattgatgcacaaggttaattat  cattacacttggcaggaatgggaatccaagtcaattaacgcaaaacacacataactac  tacaacaaactacaatactttagttataaacaatgcatttacaataactactataatcat  tcataatcaataactatacaaaacaaatagtcacaacagcaacaaataactattatact  gggtggttcagggtcgaagttagcacaacaagtaataatgttcattgtgactacaactgca  gcgccacttcaaatgggtcggttcaatttctaatgggttagcattcaggaagtaacttatat  acttcaggacaatgtacttattatgtatttgatcgtgtgggtgggaaaattgggtcaaca  tggggtaacgcaagtaattgggctaacgcagctgcatcatctgggtatcacagtgaacaat  acacacaaaagtgggtgctatcatgcaaaacacacaaaggtattacgggtcattgtgcttac  gttgaaaggcgttaacagcaacgggttctgttctgtgttcagaaatgaactatggacatgg  gctggtggtggtacgtctcgtacaatttcagcaaaacgaagcaggttcataataatttcatt  cat</p>

14.	<p>gtggctaatacgaacacacattagatatcactgggtatgacttgtgcccgtatgtca aatcgtatcgaaagaaactgaataaacttgatgacgttaatgccaaagtgaatttaact acagagaaagcaactgttgagtataaccctgatcaacatgatgtccaagaatttataat acgattcaacatttaggttacggtgtcgtgtgagaaactgtcgaattagacattacaggt atgacttgtgctgcatgctcaagccgtattgaaaaagtgttaataaaatggacggcgtt caaaatgcaacgggtcaatttaacaacagagcaagctaaagttgactattatcctgaagaa acagatgctgataaacttgcactcgcattcaaaaattaggttatgacgcgtctattaaa gataacaataaagatcaaactgcacgcaaagctgaagcgtacaacataaattgattaag cttatcatatcagcagttattatctttaccactattaatgttaagtgttgatcatctttc aatatgcataataccagcactatttacgaatccatgggttccaatttatttttagctacacct gtacaatttattatttgatggcaattttatgtagggtcttataaaaacttaagaaatgggt ggcgcaaatatggatgacttgttgcgttgggtacaagtcagcatatttttacagtatt tatgaaatgggtcgttggctaaatggctcaacaacgcaacccgatttatactttgaaaca agcgcgtactaattacctaattcttattcggtaagtatttagaagctagagcgaagtct caacaaccaatgcgcttggcgaattattaaagttacaagctaaagaagcagcatttta aaagatggtaagtgaagtgtatctctctaaatgaagtacatgttggagatcaccttatc gttaaacacaggtgaaagatacctgttgatggcaaaattattaaaggtatgactgccatc gacgaatctatgttaacaggtgaatctatccctgttgagaagaatgttgatgatactgta attgggttcaacgatgaacaaaacgggtactattactatgacagcaacaaaagtggcggt gacacccggttggcaaatattattaaagttgtcgaagaagctcaaaagttctaaagcgccg attcaacgattggcagatattattctgttatttctgttccatcgttgggtatcgcga ctattacatttctgttgggtatttacttttagttacaccaggtacatttgaacctgcact gttgccaggtatttccgttctcgttctgttgcctatgcgcattgggacttgcacacca acttctattatggtaggtactggtcgcgtgctgaaaaatgggtattttattaaaggtggc gagtttgtgaacgcacacatcaaatgtaccatcgttttagataagacgggtaccatt acaaatgggtcgtccagtcgtgacagattatcatggtgacaatcaaacgctacaactactt gtcactgtgaaaaagattctgaacacccattggcagaagccattgtcaattatgcaaaa gaaaagcaatataatttaactgagacaacaacatttaaaagcagtaacctggccatgggtatt gaagcaacgattgatcatcaccatataattgggttggtaacgtaaatattgggtgacaat gatattagcttgcctaagcatatttctgatgatttaacacattatgaacgagatggtaaa actgctatgctcattgtgttaattattcattaaactgggtatcatcgcagtgccagatact gtcaaaagatcatgccaagatgctataaaacaattgcatgatatgggcattgaagttgcc atgttaactggcgataataaaaaactgctcaagccattgcaaaaacagtaggcatagat actgttattgcagatattttaccagaagaaaaagctgcacaaattgcgaaactacagcaa caaggttaagaaggttgcgatgggtgggtgacggtgtaaatgatgcacctgcattagttaaa gctgatatcgggtatcgccattgggtacaggtacagaagttgccattgaagcagctgataat actattcttgggtggcgacttgatgcttattcctaaagccatttatgcaagtaaaagcaacc attcgtaatattcgtcaaaatctattttgggcattcggctataatattgcccgtatccct atagctgatttgggttacttgcgccatgggttgcgtggtgctgcaatggcactaagttca gtaagtgttgcacaaacgcacttagattgaaaaagatgcgattagaaccacgcgttaa gatgcc</p>
15.	<p>atgtttgattcaattagagagactatagattatgccgtagaaaaataatgtcatttgcg gatatcatggttaaagaagaaatggaattaaagcggtaaatcacgtgatgaagtgcgagcg caaatgaaacaaaaatttagatgtcatgagacgcagtaatacaagggacgacaggtgat gggggtgaaagtgtacaggggtacactggtcatgatgctgctaaactacgtgattataat gaaacacatcatgcttctgtggtatgaaatgattgacgcagtcgaaggtgccattgca acaaatgaagtcaatgctgcgatgggtattatttgtgcaacgcaacagctgggttctcgt ggtaccattcccgtgcactttttaaattagaaaaaacacatgatttaacagaagagcaa atgattgatttcttattcacttcagcattgttggcggtgctgtagcaacaatgcaagt gtagctgggtgcaacaggtggctgccaagctgaagttgggtcagcatctgcaatggccgca gctgcagcagtagctatattcggaggatcaccagaagcatccgggcacgctatggcatta gcgataagtaatttattaggttttagttttagtccagtagccgacttggtaaatccct tgtgttatgagaatgcaattgggtcgggtacagctttaaatttcagcagatttagcatta gcaggtattgaaagtagaatccctgttgatgaagttattgaagcaatggataaggttgggt cgtaaccttctgcatcattacgtgaaactggattgggtggactagcaggcacaccaact ggcgaagcaattaaacgtaaaatcttggcacagctgaagatatgggttaaaataat</p>



16. gtgaaaaacaatcttaggtacggcattagaaaaacataaattgggagcagcatcagtatc  
ttaggaaacaatgatcggtgttgggatgggacaagacaagaagctgcagcatcagaacaa  
aagacaactacagtagaagaaaatgggaattcagctactgataataaaacaagtgaacaa  
caaacactgcaactaacgttaactcatatagaagaaactcaatcatataacgcaacagta  
acagaacaaccgctcaaacgcaacacaagtaaacactgaagaagcaccaaaagcagtacaa  
gcaccacaacactgcacaaccagcaaatatagaacagttaaagaagaggtagttaaggaa  
gaagcgaacactcaagttaaggaaacacacaactcgaagacaatagcggagatcaaaga  
caagtagatttaacacctaaaaaggctacacaaaatcaagtcgcagaacacacagttgaa  
gtggcacagccaagaacggcatcagaagtaagccacgtgtgacaagatcagcagatgta  
gcggaagctaaaggaagctagttaacgcgaaagtggaaacgggtacagatgtaaacagtaaa  
gttacagtagaaattgggttctattgaggggcataacaatacaaataaagtagaacctcat  
gcaggacaacgagcggtactaaaaataaagttgaaatttgagaatgggttcatcaaggt  
gactactttgactttactttatcaaatatgtaaatagcagtcgggtatcaactgctaga  
aaagtaccagaaattaaaaatgggttcagtcgtaattggcgacaggtgaaagtttagaaggt  
ggaagattagatatcatcttacaatgatattgaagataaggttgatgtaacgggtgaa  
ctagaatttaattttattgatcctaaaactgtacaaactaatggaatcaaaactata  
actcaacactaaatgaagaacaaaactcaaaaggaattagatgttaaatataaagatgggt  
attgggaatttatgccaatttaaatggatcgatgagacatttaataaagcgaataat  
agattttcgcatgttgcatcttataaacctataaatggtaaacgcaaggtgtgactgtt  
actggaactttaatgaaggttagtaacagaaatggaatcaacccaaaggttaggatat  
gaataacttgggttaataatgaagacatagcgaagagtgatatgcaaatcagcagatact  
tctaaatttaaagaagtcacaagtaaatgagtggaatttgaatttacaataatgga  
agctattcatgtaatatagaaaactcagataaaaacttatgtgttcactatgatggagag  
tatttaaatgggtactgatgaagttgattttagaacacaaatggtaggacatccagagcaa  
ctttataagtatattatgatagaggatataccttaacttgggataatgggttagtttta  
tacagtaataaaagcgaacggaaatgggaaaaatgggtccgattattcaaaataataaatt  
gaataaaagaagatacaattaaagaaactcttacaggtcaatatgataagaatttagta  
actactgttgaagaggaatatgatctcaactcttgacattgattaccacacagctata  
gatgggtggaggtggatatgttgatgggatacttgaacaaatagaagaaacggattcatca  
gctattgatattcgattaccatactgctgtggatagcgaagcaggtcacgttggaggatac  
actgagtcctctgaggaatcaaatccaattgactttgaagaatctacacatgaaaattca  
aaacatcacgctgatgtgttgatattgaagaagatacaaacccaggtgggtcaggtt  
actactgagtcacttagttgaatttgacgaagagtcacaaaaggtattgttaactggc  
gcagtgagcgatcatacaacagttgaagatacgaagaatatacaactgaaagtaattctg  
attgaattagtggaatgaattacctgaagagcattgcaagcacaaggaccagtcgaggaa  
attactgaaaacaatcatcatatttctcattctgggttaggaactgaaaatggtcacggg  
aattatgacgtgatgaagaaatcgaagaaatagcccggtgatattaaaggtgaattta  
gggtatgaaggtggcaaaaatagcggtaaccagtcattcgaggaagacacagaagaagac  
aaacctaaatatgaacaaggtggcaatatcgtagatatcgattttgatagtgtacctcaa  
attcatggtcaaaaataaaggttaactcagtcattcgaggaagatcagaaaaagacaaacct  
aagatgaacatggcggtaacatcattgatctcgacttcgacagtggtccacatattcac  
ggattcaataagcacactgaaattatgaagaagatacaaaaataagataaaacaaagttat  
caattcgggtggacacaaatagtgttgactttgaagaagatacacttccaaaagtaagcggc  
caaaaatgaaggtcaacaaacgattgaagaagatacaaacctccaatcgtgccaccaacg  
ccaccgcaccagaagtaccaagtgagccggaaacacacacccagcaacacacagaaagta  
ccaagtggccggaaacacacacacccagcagacacagaaagtgcagtgagccagaaact  
ccaacacccgcaacacacagaggtaccagctgaacctggtaaacaggtaccacctgcaaaa  
gaagaacctaaaaagccttctaaaccagtggaacaaaggtaaagttagtaacacctgttatt  
gaaatcaatgaaaaggttaaagcagtgccaccaactaaaaaacacaaatctaaagaatct  
gaactacctgaacaggtggagaagaatcaacaaacaaaggtatgtgttcggcggtatta  
ttcagcatctcaggtttagcattattacgcagaaataaaaagaatcacaagca

17. ttgcatttaagggagaatattatagtgaaaagcaatcttagatagcgataagaaaaacac  
aaattgggagcgccctcagttattcttaggaacaatgatcggttggaatgggacaagaa  
aaagaagctgcagcatcggaacaaaacaatactacagtagaggaagtggttcagct  
actgaaagttaaagcaagcgaaacacaaacaactacaaaataacgttaatacaatagatgaa  
acacaatcatagcgccgacatcaactgagcaacctacacaatcaacacaagtaacaaca  
gaagaagcaccgaaaaactgtgcaagcaccacaaaagtagaaacttcgaggttgatttgcca  
tcggaaaaagttgctgataaggaactacaggaactcaagttgacatagctcaaccaagt  
aacgtctcagaaattaaaccaagaatgaaaagatcaactgacgttacagcagttgcagag  
aaagaagtagtggaagaaactaaagcgacaggtacagatgtaacaaataaagtggaagta  
gaagaaggttagtgaattgttaggacataaacaagatagcaatgttgtaaatcctcataac  
gcagaagagtaaaccttgaaataataatggaaatttggaagaggaattaaaggcgggagat  
tattttgatttcacattaaagcgataatgttgaaactcatggtatctcaacactcggtaaa  
gttcgggagataaaaaagtagatggtcaagttatggcgacaggagaaaaatattggagaa  
agaaaagttagatatagtttaagaatatgtacagaaaaagaaagatttaactgctgaa  
ttatcttaaatctatttatttgatcctacaacagtgacgcaaaaaggttaacaaaatgtt  
gaagttaaatgggtgagactacggttagcaaaaattttaatttcaatttttaggtgga  
gttagagataattggggagtaacagctaatggtcgaaattgatactttaaataaagtagat  
gggaaatttagtcattttgcgtacatgaaaccttaacaaccagtcgttaagctctgtgaca  
gttaactggtcagataactaaaggaaataaaccaggggttaataatcaacagtttaaggt  
tataaacacattggttcagacgatttagctgaaagcggtatgcaaaagcttgatgagtc  
agcaaatgtgaagatgtgactgataatatgagtttagattttgataactaatgggtggtat  
tctttaaacctttaataatttagaccaaagtaaaaattatgtaataaaatatgaagggtat  
tatgattcaaatgctagcaacttagaatttcaaacacaccttttggatattataactat  
tattatacaagtaatttaacttggaataatggcgttgcattttactctataacgctcaa  
ggcgacggcaaaagataaaactaaaggaaacctattatagaacatagtagctctatcgaaact  
gaatttaaatcagagccgagtggaagcatgaattgactggtacaatcgaagaaagt  
aatgattctaagccaattgattttgaatatcatagctgttgaaaggtgcagaaggtcat  
gcagaaggtaccattgaaactgaagaagattctattcatgtagactttgaagaatcgaca  
catgaaaattcaaacacatcatgctgattgttggaatatgaagaagatacaaacccaggt  
ggtggtcaggttactactgagcttaacctagttgaatttgacgaagattctacaaaaggt  
attgtaactggtgctgttagcgatcatacaacaattgaagatacgaagaatatagcact  
gaaagtaattctgattgaactagtagatgaactacctgaagaacatggtcaagcgcaagga  
ccaatcgaggaaattactgaaaacaatcatcatatttctcattctggtttaggaactgaa  
aatggtcacggtaattatggcgtgattgaagaatcgaagaaatagccacgtggatatt  
aagagtgaattaggttacgaaggtggccaaaatagcggtaatacagtcatttgagggaagac  
acagaagaagataaacggaatatgaacaaggtggcaatatcgtagatcagatttcgat  
agtgtacctcaaatcatggtcaaaataatggttaaccaatcatcgaagaagatcacagag  
aaagacaaaacctaaagtatgaacaaggtggttaatatcattgatcgcacttcgacagtg  
ccacatatcagggattcaataagcacactgaaattattgaagaagatacaataaagat  
aaaccacaaattatcaattcgggtggacacaaatagttgactttgaagaagatacactcca  
caagtaagtggtcataatgaaggtcaacaaacgattgaagaagatacaaacactccaatc  
gtgccaccaacgcccagacaccagaagtaccaagcgagccggaacacacaccacccg  
acaccagaagtaccaagcgagccggaacacacacccgccaacgccaaggttaccacact  
gaacctggttaaaccaatcacactgctaaagaagaacctaaaaaaccttctaaaccagtg  
gaacaaggtaaagtagtaaacactgttattgaaatcaatgaaaaggttaagcagtggtta  
ccaactaaaaagcacaatctaagaaatctgaactacctgaaacaggtggagaagaatca  
acaaacacggcatgttctcgccggtattttagcatttttaggttttagcgttattacgc  
agaaataaaaagaatcacaaagca

18.	<p>atgcaaatgagagataagaaggaccggtaaataaaagagtagattttctatcaataaa  ttgaataaataatccaataagaaaaatttacagttggaacagcatctattttaattggctca  ctaatgtatttgggaactcaacaaggagcagaagcagctgaaaaaataattgagaatcca  actacattaaaagataaagtccaatcaaaagaagtgaagattgaagaagtaacaaacaaa  gacactgcaccacaggggtgtagaagctaaatctgaagtaacttcaacaaagacacaatc  gaacatgaaccatcagtaaaagctgaagatatatcaaaaaaggaggtacacacaaagaa  gtagctgattgtgctgaagttcagccgaatcgctcagtcactcataacgcagagacacct  aagggttagaaaagctcgttctgttgatgaaggctcttttgattatacaagagattctaaa  aatgtagttgaatctacccaattacaattcaaggtaaagaacattttgaagggtacgga  agtggtgatatacaaaaaaaccaacagatttaggggtatcagaggtaaccagggttaaat  gttggttaataagtaattgggttgataggagctttacaattaaaaataaaatagatttt  agtaaggatttcaattttaaagttagagttggcaataaacatcaatcaaataccacaggt  gctgatgggtgggggttcttatttagtaaaaggaatgcagaagaatatttaactaatgggt  ggaatccttggggataaaggctcgtgtaaatcaggcggttttaaatgtatactggatcac  atttatacaagttccatggacaaaactgaaagcaagctggacaaggttatagaggatac  ggagcttttggtaaaaatgacagttctggttaattcacaaatgggtgggaaaaatattgat  aaatcaaaaactaaatttttaactatgcccgaattcaactaatacatcagatggaaag  tttcatgggcaacggtttaaatgatgtcatcttaacttattgtgcttcaactggttaaatg  agagcagaatatgctggttaaaacttgggagacttcaataacagatttaggtttatctaaa  aatcaggcatataatttcttaattacatctagtcagaagatggggccttaatacagggata  aatgcaaatggctggatgagaactgacttgaagggttcagagtttacttttacaccagaa  gcgcaaaaacataaacagaattagaaaaaaagttgaagagattccattcaagaaagaa  cgtaaatttaatccggatttagcaccagggacagaaaaagtaacaagagaaggacaaaaa  ggtagagaagacaataacgcacacacactaaaaaatccattactggagtaatttagt  aaaggtgaaacaaaagaagagattacaaaagatccgatttaataagtaataacagaatacggga  cctgaaacaaatagcgccaggtcatcgagacgaatttgatccgaagttaccaacaggagag  aaagaggaagttccaggtaaacagggaattagaatccagaacaggagagcgtagttaga  ccgcccgttcgatagcgttaacaaaaataggacctgtaaaaggagactcgattgtagaaaaa  gaagaratttccattcagaaagaacgttaaatttaatccggatttagcaccagggacagaa  aaagttaacaaagagaaggacaaaaaggtgagaagacaataacgcacacactaaaaaat  ccattacttgggaaaaattatttagtaaaaggtgaatcgaaagaagaaatcacaaaagatccg  attaatgaattaacagaatacggaccagaaacgataacaccagggtcatcgagacgaattt  gatccgaagttaccaacaggagagaaagaggaagttccaggtaaacagggaattagaat  ccagaacaggagagcgtagttagaccgggtcgatagcgttaacaaaaataggacctgta  aaaggagactcgattgtagaaaaaagaagaattccattcaagaagaacgttaatttaaat  cctgatttagcaccagggacagaaaaagtaacaagagaaggacaaaaaggtgagaagaca  ataacgcagcccaactaaaaaatccattactggagaattatttagtaaaaggtgaatcg  aaagaagaatacacaaaagatccgatttaataagtaataacagaatacggaccagaaacgata  acaccaggtcatcgagacgaatttgatccgaagttaccaacaggagagaaagaggaagtt  ccaggtaaacagggaattagaatccagaacaggagagtagttagaccacgggtcgat  agcgttaacaaaaatattggacctgtaaaaggagactcgatttgtagaaaaagaagaattcca  ttcgagaagaacgttaatttaattcctgatttagcaccagggacagaaaaagtaacaaga  gaagacaaaaaggtgagaagacaataacgcagcccaactaaaaaatccattactgga  gaaattatttagtaaaaggtgaatcgaaagaagaatacacaaaagatccagtttaataagta  acagaattcgggtggcgagaaaaataccgcaaggtcataaagatatctttgatccaaactta  ccaacagatccaacggaaaaagttaccaggttaaacagggaattcaagaatccagacacagga  aaagtgtatcgaagagccagtggtgatgtgtataaacacggaccaaaaacgggttacacca  gaacacaaaaacagtagagataccggtttgaaacaaaacgtgagtttaattccaaaattacaa  cctggtgaagagcgagtgaaacaaagaaggacaaccagggaagtgaagacaatcacaaacca  atcacagtgaaacccattaacaggtgaaaaagttggcgagggtcaaccaacagaagagatc  acaaaacaaacagtagataagatttgtagagttcggtggagagaaacaaaagataccaaa  ggacctgaaaacccagagaagccgagcagacacactcatccaagtggccaggttaaatcct  aacaattccaggattatcgaaagacagagcaaaacaaatggccaggttcaattcaatggat  aaaaatgataaagttaaaaaatctaaaattgtcaagaatcagtagctaatcaagagaaa  aaacgcagcagaattaccaaaaacaggtttagaagcagcgaacaaaggtttgatctttagt  agtaataattggaattgctggatttaattgtattggctcgtagaagaagaat</p>
19.	<p>atgaaaaataatataatctcgaagttgctagttggggcagcaacaattacgttagctaca  atgattttcaaatggggaagcaaaaagcgagtgaaaacacgcacaaaacttcaactaagcac  caaaacactcaaaaacactacgtaacagatcaacaaaaagcttttatcaagtattacat  ctaaaagggtatcacagaagaacaacgttaaccaatacatcaaaacattacgcgaacaccca  gaacgtgcacaagaagttattctctgaatcacttaaaagacagcaagaaccagacccaggt  gttgcaacaaaacgctttttacaattgttcttaaaaatgataacttaactgaacaagaa  aaaaataattacattgcacaaattaaagaaaacccctgtagaagcacaagaatttgggtta  gaatcagtagaatcttctaagctaaagaacgtcaaaatattgaaatcgggataaagca  attaaagatttccaagataacaaagcaccacagataaatcagcagcatatgaagctaac  tcaaaattacctaagatttacgtgataaaaaacacccgctttgtagaaaaagtttcaatt  gaaaaagcaatcgttcgatgatgagcgtgtgaaatcagcaaatgatgaatctcaaaa  ttaaatgaaaaagattcaattgaaaacagacgtttagcacaacgtgaagtttaacaagca  cctatggatgtaaaagagcatttacagaaacatttagacgcatttagttgctcaaaaagat  gctgaaaaagaagttggcgcaaaaagttgaggtcctcctcaattcaatcaccacaaattgaa  aaacctaaagtagaataccaaaagttgaagtcctcaaatcaatcaccaaaagttgag  gttctcctaatctaaattattaggttactaccaatcattaaaagattcatttaactatggt  tacaagattttaacagatacttataaaagctataaagaaaaatatgatacagcaaggtac  tactataatcagtagctataatacaaaaggtgcgatttgatcaaacagatttaacagtagta  ggtagtgggttctaaatcttacatccaaccattgaaagttgtagtaaaaaacggctactta  gctaaatcatatgcacaagtaagaactatgtaactgagtagcaatcaatctggttaagta  ttataacttttaccaaaacccaacttagtaaaaaacagctattaaagctcaagaact  gcacatcaatcaaaaatacattaaagtaatttattatcattctggaaa</p>

20.	atggccgtattttcaaaagagaaaaagagaggatgtatcgttgtgatagaacatttaa gcgtttgttaattgataaagatgagagtggttaaagtgacaccaactttcaacaattatcg cctactgattacctaaggagatgtgctgtatgaagtaacttactcttggtataaattat aaagatgcttttagcgactcaagaccataatgcagtcgtataaatcgtatcctatgattcca ggaatagatttagctggaacaattgttgaatccgaagcaccaggctttgaaaaggagaa caagtaattgttaacaggttatgacctagggtgcagccattatggcggttttagtgaatat gcgcgtgtataaatcagaatggattatcaagcttctgtactttaacattagaagaatca atgatataaggcacagctgggtataactgcccgttttagcaattgaaagacttgaaaaagt ggaatgaattattgaagatgggtcctgtactcgttcgcggtgcttcagggtggtgcggtact ttagcagctactcatgcttaatagaacttgggtataaagttatcgcaagtacaggtaaacaa gatgttagcgatcaattacttgaacttgggtgccaagaagtatacgatcgacttctcgtt gaagatgatcataaaaagccactcgcatcatcaacttggcaagcttgtgtagacctgtt gggtggcgaaggtattaattatgttacaaagcgtttaaatcatagtggttcaattgcagtt attgggtatgactgcccgttaataacttataactaattctgtattcctcacattttaagaggt gtaaacatttttaggaattgactcgggtatttactgctatgaaattagacagcgcgtttgg cgtcgtctcgcaaaagatttaatgcctgaaaatttacctgagatcaagcaagttattaca tttgatgaactccagaacaacttaacaaagtaattaaacatgaaaataaaggcgccatt gttatcgatttcggtgtagataaa
21.	atgaaaaaattagtaacagcaactacgttaacagcaggaatcggcagcagcatttaggt caagcatatcatgcagatgctgctgaaaaattatacaaatatacaacaactataactaac acgactcaaaactacaacgactacgacaactacgacaactacatcatcaatttccattct ggtaactatacactgcaggacaatgtacttgggtatgtatgataaaagtggcggaagaa atcggttctacttggggaaatgctaaatattgggtgctgctgcacaaggtgctggattc acagtaaatcatcacacttctaaaggcgtatcctacaacttctgaaggaccatttgggt cacgttgcatagttagaaagtgttaaacagtgatgggtcagttacaatttcagaaatgaat tatagtgccggaccttctcagtaagttctagaactatttctgcaagtgaagcaggttaac tacaactacatccatatt
22.	atgaagaaaaatcgctacagctactatcgcaactgcaggattcgctacaatcgcaattgca tcaggaaatcaagctcatgcttctgagcaagataactacggttataatccaaacgaccca acatcatatagctatacttactactattgatgcacaaggttaactaccattacacatgaaa ggtaactggcatccaagtcaattaaaccaagataatggctactacagctattactactac aatgggttacaataactatacaaatatacaacaacggttatagctacaataactacagccgt tacaacaactactcaataataatcaatcatataactacaataactataatagtacaac acaacacagctacccgtactgggtttaggtgcaagctacagcacttcaagcaacaatgtt caagttaactacactatggctccatcatcaaatggcgttcaatctcaagtggttatact tcaggacgttaacttatacacttctgggtcaatgtacatactactgtatttgatcgtgtagggt ggtaaaatcggttcaacttggggcaatgcaagtaactgggttaacgcagctgcaagagct gggttacacagtgaaacaatacaccaaaagctgggtgcaattatgcaaaacaactcaaggtgca tacggtcacgttgcatacgttgaaagtgttaacagcaatgggttcagtaagagtttcagaa atgaactatgggtatggccaggtgtgttaacttcacgtacaatctcagctagccaagct gctgggtataacttcaattcac
23.	atgtcaatgacatatagaataaagaaatggcaaaaattatccaccattacgtttattaatg gctggtgtgattactttgaatgggtggtgaattcagaaggttgataaaacatcaaatcgct gtggctgatacgaatgttcaaacgccagattatgaaaaattggaacacatggctggac gttaactatgggttatgataagtatgatgagaataatccagatatgaagaagaagtttgat gctacagagaaagagcgagcaaatttactcaaggaaatgaaaactgaaagtggtaggaaa tacttgggtcaggagcggaacccctgaaaactaattcttctcatatgactcgtacattat cgtaatatattgagaaaaatcgcaagaagcgatgaggaatcctaaaaaccactttaaatactgac gaaaataagaagaagtgaaagatgcccttgagtggtgcataaaaatgcataatggaagaa gaaccagataaaaagttaaaagaatttaagtgagaattttactaaaacaactggcagaat accaacttaaatgggtgggttatgaaattggaacacctaataatcatatacaaatacgctt atattgctgaatgatacaattttcaaatgaagaaaagaaaaattcactgcccctatttaa actttcgccccagatagtgacaaaatattatcttctgtaggaaaagctgaaactgtctaaa ggcggaatcttagtagacatttctcaagtgaaacttttagaattgtattatcgagaagat aaagatatgatgaaaaagcttatagattcatttaataaagcttctactwacgttcaagat tctgccactggtaagaaacgttaattggattttataaagatggcttctacattgatcatcaa gacgttccatacactgggtgcttatggcgttgactcttagaggggatttctcaaatgatg ccgatgataaaagaacaccttttaattgataaaacccaaatgatacaaccttaaaagtca tggatttcagcagcggtttatgccactcatttataaagtgaaatgattggattttatcaca ggtagagctatcagtcgtgaaatgaaaccagtcactcagcatctgcaacagtaataa catttggatgatttaagtgtatgccatggatgattcaacaaaagctaaagtataaaagatt gtcaaatcttcagtagagtcagattcaagttataaacaataatgattttaaatccatat tcggacatagataaaatgaagctttaaagacagataaacagtttctaaaaacggattta acacaacaacttaaaatatataatgacatggatcgtgtcacctatcatacaaaagactta gactttgcatttgggttaagtatgacgtcgaaaaacgttagcagctatgaaagtatcaac ggagagaattttaaaggttggcacactgggtgctggaatgtcttattataataacagcgat gtcaaacactatcatgataacttctgggtgacagccgatatgaaacgtttatcagggtaca acaactttagacaatgaaatattaaaagatagcgatgataaaaagtcaggtaaaactttt gttggcggaacaaaagtgtatgaccaacatgctagatcggaatggattttgaaaatcag gacaaaactttaactgcaaaaaatcatatttcatattaaacgataaaaattgtcttctta ggaactggcattaaaagtactgattcatcaagaatccagttacaacgattgaaaatcgc aaagcgaatgggtatagttatatacagacgataaacaacaacaaatcttgataatcag gaaaacaattcagtccttttttagagtccacagataccaaaaagaacatcggttatcatttt ttaaacacaacccgaaaataactgtaaaaaaagaagtcatactggtaagtggaaagaaata aataaaggtcaaaaggatatacaaaaaactgatgagttattatgaagtaactcaaaagcat tctaattctgacaataaataatggatattgtgtgtatccaggcttatctaaagatgtcttt aagacaataaagatgaagtaactgtcgttaagcaagaagatgactccacgttgtgaaa gataatgaatcggtttgggtgggttaattatagtaatagcactcaaaacttttgacatt aacaacactaaagtgcgaagttaagccaaaggtatgtttatacttaaaaagaaagatgat aacacttatgaatgtagcttctataatctgaatctacaaattccgcttcagatattgaa tctaaaatttcaatgacgggttactctattacaacaacaaatcgtcgacttctaatgaa tcggcggtgcaactttgaaataactaaa
24.	gtgaatgatttgaagcaatttctatatattgcgttagtatgtggtgtgatagcaggtctt ggtgcttcttcatataccgcagtatccgagcatgacaattccacgtatagtagctatt ttaggaattatcagtgctatgttacttttaagacaagcaaatcagcgcctcattaaag tttagcgcattgttaatttaattgtgctgccattatgcggtacctttgtagcttcaaat

25.	gtgtctcgtgaaatgtcatatcattgggtttaagaaaatgttactttcaacaagtatttta attttaagtagtagtatttagggcttgcaacgcacacagttgaagcaaggataactta aatggagaaaaaacactactaatttgaatcataatataacttcaccatcagtaaatagt gaaatgaataataatgagactgggacacctcaggaatcaaatcaaacgggtaattgaagga acagggttcgaatagtcgtgatgctaactcctgatcgaataatgtgaagccagactcaaac aaccaaaaaccaaagtagatcattcaaacagagaccataaaccaaaaccaaagtcgaat cctaaccagatccagataaaccgaaaccaaaccggatccaaaacagaccagataaaa ccaaagccaaatccggatccaaaacagatccagataaaccgaaaccaaaccagatcca aaaccagaccagataaaaccaaagccaaatccggatccaaaacagatccagataaacca aagccaaatccgaatccaaaacagaccctaataagccaaatcctaaccgctaccagat cccgatcaacctggggatttccaatcattctgggtggctcgaaaaatggggggacatgggac ccaaatgcttcagatggatcctaataaggtcaatggcaaccaaatgggaatcaaggaaac tcacaaaatcctactggtaagtatttgtatcccaacgatttttagccttggcaaatggg gcttacaagtataatccgtatattttaaatcaaatataaagttgggcaagattatgga gaagttagtgatgaagacattataatattatcgaaaacaaaatttcagcggaatgca tatttaaatggattacaacagcaatcgaattactttagattccaatattcaatccattg aaatcagaaaggtactatcgtaatttagatgaacaagtactcgcatatattactggtgaa attggatcaatgccagatttgaaaaagccgaagataagccggattcaaaacacagctca tttgaaccgcatgaaaaagacgattttacagtagtataaaaacagaagataataagaaa agtcgctcaactgcataatagtaaaagtggctagcaattgtatgttctatgattggtga tttcaatcatgctattcttatttgaagcgaaataaaaagaaaaataaaaacgaatca cagcgacga
26.	atgaaaaataaaaaacgtgttttaatagcgtcatcattatcatgtgcaattttattgtta tcagcagcaacgactcaagcaaatcagctcataaagactctcaagaccaaaataagaaa gaacatgttgataagtctcaacaaaaagacaaacgtaattgttactaataaagataaaaat tcaacagcaccggatgatattgggaaaaacggtaaaatcacaaaacgaactgaacagta tatgatgagaaaaacaaatatactccaaaatttacaattcgactttatcgatgatccaact tatgacaagaatgtattacttgttaaaaaacaaaggtcatttcaattcaaatttaagttt gaattctcataaagaagaaaaaaattcaaatgggttaaaagtatccaagtgaatccatgta gattttcaagtaaaaagaatcgtaaaactgaatattagaccaatttgcgaaaaataaaa atttcaactgcaaaagtagacagtagattttcatatagctcagggtggtaaatccgattca acaaaaggtattggacgaacttcatcaaatagctactccaaaacgattagttataatcag caaaattatgacacaaattgccagcgttaaaaaataaactggcatgtacactgggtcagtt attgccaatgacttgaagtattgggtggagaagtgaaaaatagaatgatgaattattatc tatagaatacagagaattgctactgtagaacacccgtgaactaagcttgcctcaaaatat agatccaccagcattagtaagaagtggctttaatccagaatttttaacttatttatcatt gaaaagtcaaatgagaaaaacgcaatttgaagtacatacacacgaaatcaagatattttg aaaaacagacctgggaatacattatgcacctccaattttagaaaaataaagatggtcaa agatttaattgtcacttatgaagtgtattggaataaaaaacagttaaagtcgttgataaaa tattctgatgacaataaaccttataaagaagga
27.	atgtatacacgtacagctacaacaagttagtagtcaaaaaatattactcaaagcttacaa tttaatttcttaactgaacctaatatgataaagaacagttatttataagcaaaaggt acaattggtagtggtttgagaattttagaccocaaatggttattgggaatagtacattaaga tggcctggatcttattcagtttcaattcaaaatgttgatgacaacaacaatacaaatgtg actgactttgacacaaaaaatcaggatgaatcaagagaagttaaatatacgtatggttat aaaacaggtggagattttcgattaatcgtggaggcttaactggaaatattacaaaagag agtaattattcagagacgatttagttatcaacaaccatcatatcgtacattacttgatcaa tctacgtcacataaaggtgtaggttggaaagttagaacacattttgataaataatattggga catgaccatacagagacaatttaactaatgatagtgataatagaactaaaagtgaattttt tctttaacacgaaatggaaattttatggggcgaagataatttcacacctaaagacaaaatg cctgtaactgtgtcgaagggtttaatccagaatttttagctgttatgtcacatgataaaa aaagacaaaggttaaatcacaatttgttgttcattataaaagatcaatggatgagttaaa atagatttgaatcgccatgggttctggggctattgggtcgttgaaaaccatgtagataaaa aaagaagaaaaattatcagcattatatagaagtgtattggaagacacataatgtgaagttt gtaaaagtacttaatgataatgaaaagaaa
28.	gtgggtgaaatttatgaattatccaaatggtaaaccatatcgtaaaaatagtgtctatagac ggagggaaaaagaccgctgccttttagtaattattgagtaggtggacgtgggtatgtcactt gaaaaagatatcgaacattcaaatagcttttatcttaaaagcgacattgcagttattcac aaaaagcctacgccaagtacaataagtttaattgtcaactatcctaagcggagtaaaagctgtg attaacgaagcttattttcgtacaccttcaacaaactgattacaacggcgtttatcaaggt tattatattgattttgaagcaaaagaaactaaaaacaagacgtcctttcctttaaatat attcatgaccatcaagtcgaacatatgaaaaatgcataatcaacaaaaggtattgtgttt ttaatgattcgttttaaaacgctagatgaagtttatcttttaccctattcaaaattcgaa gtattttggaagagataaaagataatataaaxagtcataacagttgatgaaatcga aaaaatggttaccatattccttatcagtatcaaccaagattagactatctaaaagcagtt gataagttgatattagatgaagtgaggaccgcgta

29.

gtgaatacacacgaaagcagcattacatggtgatgtgaagttacaaaatgataaagatcat  
gctaaagcaaacggttagtcaattagcacatctaaacaatgcacaaaaacatatggaagat  
acgttaattttagtagtgaacaaactagaacagcagtttaagcaagattttagtgaagcaca  
gcatttagatcaacttatggatgcattacaacaaagtattgctgacaaagatgcaaacggt  
gctagcagtgcatatgtcaatgcagaacccaataaaaaacaaatcctatgatgaagcagtt  
caaaaatgctgagttctatcttgcaggatataaataatccaactatcaataaaggttaattga  
tcaagtgcgactcaagcagtaataatcatctaaaaatgcatttagatggttgaacgatta  
gctcaagataagcaaaactgctggaatctcttaaatcatttagatcaatttaaccacagct  
caacaacagcgctagaaaaatcaaatataatgcaacaactcgtggcgaagtagcaca  
aaattaactgaagcacaagcacttaaccaagcaatggaagctttacgtaatagcattcaa  
gatcaacagcaaacggaagcgggttagcaagtttatcaatgaagataaaccacaaaaagat  
gcttaccagcagcagttcaaaaatgcaaaaagatttaatttaacaaactaacaatccaacg  
cttgataaagcacaagttgaacaattgacacacagctgttaaccaagctaaagataaacct  
cacgggtgatcaaaaacttgacagcagataaacaacatgcgggttactgatttaaatcaatta  
aatggtttgaataatccgcaacgtcaagcacttgaagcccaataaacaacgcagcaact  
cgtggcgaagtagcacaacaaatagctgaagcaaaagcgttgatcaagcaatgcaagca  
ttacgtaattagattcaagatcaacaacacagaatctggtagcaagtttatcaatgaa  
gataaacgcgcaaaaagatgcttaccagcagcagttcaaaaatgcaaaaagatttaattaac  
caaacaggttaattccaacactcgacaaatcacaagtagaacaattgacacagcagtaaca  
actgcaaaagataatctacatggtgatcaaaaacttgctcgtgatcaacaacagcagta  
acaactgttaattgcatgccaacttaaatcatgcacaacaacagcatttaactgatgct  
ataaatgcagcgcttacaagaacagaggttgacacacatggtcaaaactgctactgaact  
gatcacgcgattggaacattgaaaaatgaagttgatcaagtgaaatcacagataagggctcaa  
ccaaattacactgaagcgtcaactgataaaaaagaagcagtagatcaagcgttacaagct  
gcagaagcattacagatccaactaatggttcaaatgcgaataaagacgctgtagaccaa  
gtatttaactaagcttcaagaaaaagaaaatgagtttaattggttaagtagagagctgctgaa  
gctaaaaacacagcgaacaaactattgaccaatttaacacatttaaatgctgatcaaat  
gcaactgtcaaaacaaacttgatcaagcagcgaacttcaaccaattgctgaattagta  
gatcaagcaacgcaattgaatcaatctatggatcaattacaacaagcagtttaattgaacat  
gctaacggttgagcaaacgttagattacacacagcagattcagataaaacaaatgcttat  
aaacagcttattgctgatgctgaaaatgtattgaaacaaatgcgaataagcaacaagtg  
gatcaagcacttcaaaaatttttaaatgcaaaaacagcatttaattggtgatgaacgtgta  
gcaacttgctaaaaacaaatggttaaacatgacatcgaccaattgaatgcattaaacaatgct  
caacaagatggatttaaggtcgcatcgatcaatcaaacgatttaaatcaaatccaacaa  
attgtagatgaggtcaagcacttaactcgtgcaatggatcaattgtcacagaatcact  
gacaatgaagcagcagcgaaggttagcagcaactatgtcaatgcagatacaacaagtcaca  
caagttatgatgaacgggttgataaagcgaacacagcacttgataaatcgactggtcaa  
aacttaactgcaaaacaggttatcaaattaaatgatgcagtcagtcagcgaagca  
ttaaatggtggaagaaagacttaataatgtaagcgtgaagcattacaagattggatcaa  
ttaacacatctaaacaatgctcaaaagcaatttagcaatccaacaaatataatgctgaa  
acggttaataaaagcattcgagcaatttaagagcaactaaattagataatgcaatgggt  
gcagttacaacaatatattgacgaacagcacttgggttattcagcagcacaatctacatc  
aatgcagatgacaatttgaagcaaatatgataatgcaattgcgaatgcagcagatgag  
ttagataaagtgcaaggttaattgaattgcaaaagcgaagcagagcaattgaaacaaaat  
attatcgatgctcaaaatgcattaaatggagacaaaaccttgcaaatgcaaaagataaa  
gcaaatgctggtttgttaattcgttaaatggattaaatcaacagcaacaagatcttgacat  
aaagcaatttaacaatgccgatactgtatcagatgaacagatattgttaataatcaaat  
gacttaaatgcatgcaatggaacattgaaacatttagttgacaatgaaattccaatgca  
gacaaactgtcaattaccaaacgctgacgataatgctaaaaacaaacttcgatgatgcc  
aaacgtctagcaaatacattgctaaatagtgataacacaaatgtgaatgatcaatggc  
gcaatccaagcagtcgaatgacgaatccataatcttaattggtgatcaacgactacaagat  
gctaaagcaagcgaatttcaatctatcaatcaagcttttagctaaatgctaaaagaaatc  
gaagcttcaaatgcgacggatcaagacaaagcttattgcaaaaaataagcagaagaattg  
gcaaacagcatcatcaacaacatttaaaagcaacaagtaatacaggtgtatctcaagtt  
caaacagcaggcaaccacgctgattgaacaagtgcatgccaatgaaataccaaaagcaaaa  
attgatgccaataaagcgttgataagcaagttcaagcatttaattgacgaattgatcga  
aatccaatcttaacagataaaggaaaaacagcacttaagatcgtatttaatacaatctt  
caacaaggtcacaacggttaacaatcgcatgactaaagaagaattgaaacaagccaaa  
gcacaacttgccgaagcattacaagacatcaagatttagtgaagcgttaagaagatgctg  
aaacaagatggtgataaacaagttcaagctttaaattgacgaatcgatcaaaatccaat  
ctaacagataaaggaaaaacagcacttaagatcgtatttaatacaatcttcaacaaggt  
catatgcagattamcaatgcgatgcaaaaagagcaattgaacaagcaaaagacgttta  
gcgcaagcattgcaagacatcaagatttagtgaagcgttaagaagatgcaaaaaatgat  
attgataaacggtgataagctttaaattgacgaatcgatcaaaatccaatctaacagat  
aaggaaaaacagcacttaagatcgaatttaatacaatcttcaacaaggtcacaagc  
atttaacaatgctgctgactaaagaagaatttagcagcgaagcaaacacttgcaacgca  
ttgcaagacatcaagatttagtgaagcgttaagaagatgcaaaaaatgcaataaaagcc  
ttagctaaatgcgaagcgtgatcaaatcaattcaaatccagatttaacacactgagcaaaa  
gcaaaagcgttcaaaagaaatgacgaagcgttaaaacagcactacaacacgttgagaat  
gctcaaaactatagatcaattaaatcgaggattaaacttaggttttagatgacattagaat  
acacatgtatgggaggttgatgaacaacgtgctgaatgaaatttttgaaagcaacacct  
gagcaaatcctagtttaattggtgaactcattgtacatcgatgacatcattacagaacaa  
gatattcttcacacataaaacttaattgatcagctttcagcagaagtcacgataccca  
tcaactgcaacgattttctgatagcttaacagcaaaagttgaagttacattgcttgatgga  
tcaaaagtgattgttaattgcttcaaaagttgtgaaaaaagaaattgtcagtagtcaaa  
caacagggcaattgaatcaatcgaaaaatgcggcacaacaaaagatttaattgaatcaataat  
agttgacatttaacactggaacaaaaaagagcgtgaattgcagaagtttaataagcttaaa  
caacaagcaattgatcatgttaacaatgcacgtgatgttattcagttgaagaatttaa  
caacaagaacaagcgcatattgaacaatttaataccagaacaatttacgattgaacaagca  
aaatcaaatgcaatttaaatgattgaagatgcaattcaacatatgattgatgaatcaaaa  
gctcgtactgatcaacagataaagagaagcaagaagcatttgctaaagtttaataatcaatta  
aaagaacaagcaatttaagcgttcaacgtgcgcaagcagcagatgaataaagtgagcaa  
ttggaacaatttaaaagctcaaatgaagcagcttaattcaacagcaaaagaaactagctaaa  
cgcaagcaagaagcatttagtagaattaaagacttttcaaatgaaaaataaattagttat  
cgaaatagtgaaattggcagcagtgatgaaaaacagcagcaattcaaattaacgaa  
attgtgcttgaacaatttagagataatataatgcgcatacatcacgcaagttgaggt  
gcatgaaacaattggtattgctgaatttcagcagtagcaaatgttaacatctgatcgtgct  
aaacaatcgtcaagttggaatgaattcaatagccatttaacaattggttatggaact  
gcaaatcctcatcttaacagttcgactattggacataaaaagaacttgatgaagatgat  
gacattgatccacttcatatgcgtcacttttagtaataatttcggttaattgtaaaaac  
gctattggttggtgggtatctctggtttactagctagtttctggttcttcattgccaac  
cgtcgtgtaagaagatgaagaggaagaaattagaataaagagataataaagattca  
ataaaagagacttttagacgatacaacacatttaccacttttatttgcgaacgctgcgaga

```
aaagaagatgaagaagatgttactgttgaagaaaaagattcgctaaataatggcgagtca
ctcgataaagttaaacatacgcggttcttcttaccaaaacgtcgtcgtaagaagatgaa
gaagatgtggaagttacaaatgaaaacacagatgaaaaaggttgaaagataacgaacat
tcaccactcttattcgcaaaacgacgcaaagataaagagggaagatgttgaacaacaact
agtattgaatctaagatgaggacgttcctttattattggctaaaaagaaaaatcaaaaa
gataaccaatccaaagacaaaaagtcagcatcaaaaaatacttctaaaaaggtagcagct
aaaaagaagaaaaagaagctaagaaaaataaaaaa
```

30. atgaatcaggaagttaaaaacaaaatattttcaatcttaaaaaattacgtttgctacagct  
ttatttattttttagcaatcacattgtatcgggagttatctgggtattaactttaagat  
acgttgggtgaatttagtaagattaaccgtagtccttagtggtactatttattgggtgg  
ggggcatcgcttggtattctatcaatgtatgatgtgattttatctagagctttaaaaatg  
gatatatccttaggcaaaagttttaagagtaagttatatcatcaatgcattgaatgcgatt  
gtaggtttcgggtggctttattgggtgcaggcgtagagcaatgggttataaaaaactatac  
catgataaaaaagaaattagttcactttatatcttaactatttcaatgttgacaggt  
ttaagcttattatcatttgctaattgtattccatgttttcgatgcattttaaacttagat  
aagattacatgggtaagatgggtattatgtatgtgcatttttcttaccattattcatt  
attattcaatgggttagaccaccgataaaaaacaaatcgtttttaggattgtactgcact  
ttagtctgctgttggaatgggttagcagctgcagttgtattatttctggtgtgaatt  
ggttagcgtcatgtatcatcattcattgctctttattgcaatattatcattgtgcattatca  
ggtttagtcagctttattctggtgggtttcggcgctttcgatttagttgtattactagga  
tttaaaactttagggtgctcctgaggaaaaagtatttaatgcacttctatatcgtttt  
cgctactattttgtaccggaattattgcattaaatttatcatcatttgaatttggtaca  
tcagtaagaagtacatttagggatctaaactatttctctgctaaagatgttacgtca  
tttttaactgcttatcaaaaggatattattgtcaaaatccatcattatcattagcaatt  
ttagtattctttacaagtagatctttttgtaaataacttaacgattgtttacgatgct  
ttatatgatggaatcacttaacgtatttatctattggcaattcatactagtgtgtgt  
ttattacttttactgaatgtagtgtgtatttataagcaagtagacgtgccattatcttt  
gctatgattttcaatttttaatacacagtgccgacattcttcaacttacgcttcataatt  
ttaataacatgggttagctattattttgttctgcttattgtagctttccgtagagcacgt  
agggtgaacgccccagtaagaatgagaaatagttgcaatgcttttattcagtttattt  
attttatatgttaaccataattttattgctggaacgttatatgcattagatatttatcag  
attgaaatgcatacatctgtattgctgctatttctggtttacgattttaatcatcgct  
atcatcataggtatgattgcatggtgtgtttgattatcaatttagcaagtagctatttct  
tctaaaaattgaagattgagagagattattaatcagtagcggtgaattatttgagtcac  
ttgatataatggtgacagcagtttttactaatgaaaataaacagcatttttaag  
tatcgttataaagcaagttcatttagtgggttcttgagatcgttaggtgatgaaatgcc  
tttgatgaattgttagaagcattctataattacgctgagttattaggctatgatgttata  
ttctatcaagttacagatcaacacatgcctttatatcataatttcggttaaccaattttt  
aaattaggtgaagaagcaattattgatttaacgcaattttcaacttcaggtaaaaaacgc  
cgtggatttagagcgactttaataaaatcagatgaacttaatttctgctcgaattatt  
gaaccaccgttttcaactgaatttataaatgaacttcaacatgtaagtgatttatggcta  
gataatcgtcaggaaatgcatttctctgttggtgaatttaataagaatacttatctaaa  
gcgccaattgggtgaatgcgaatgaagaaatgaagtaattgcattttgtagtttaag  
ccaacatacttttaagatgcatttccagtcgatttaattagatggttgccagagtagat  
ttaccattaatggatgggtctatacttgcataatgttactttggagtaagaacaggttat  
acaaaatttaatatgggtatggcaacgttatcgaaacgttggtcaattgcattatctat  
ttaagagaacgacttgcaggccgtgtctttgaacatttcaacggtctatatcgtttccaa  
ggattacgtcgttataaatctaaatataatccgaattgggaaccacgcttttagtttat  
cgtaagataaattcgctttgggaatcactttctaaagttaatgcgtgaatacgtcacaaa



31.	<p>atggttgacattacgcttgtaggttcagcagtcactgcacatcaagttcaagcagctgag  acgacacaagatcaaaactactataaaaaacgttttagatagtaataaagttaaagcaact  actgaacaagcaaaagctgaggttaaaaaatccaacgcaaaacatttctggcactcaagta  tatcaagacccctgctattgtccaacaaaaacagcaaatcaaaaaacagggcaatgctcaa  gtaagtcaaaaagttgatctgcacaaagtaaatggtagactcgtgctaataatcagcgc  actacaaaataacgcagcctgttgcaaaagtcaacaagcactacagcacctaaaaactaac  actaatgtttacaaatgctgggttatagtttagttgatgataagtgataattcagaaaat  caaatatccagaatataatcaaatcagctgtcaaacctgcagctcttgaaacgcaatat  aaaaccgcagcacctaaaagctgcaactacatcagcacctaaagctaaaactgaagcgaca  cctaaagtaactacttttagcgcttcagcacacaagatcagttgctgcaacacaaaaa  acgagtttgccaaaataaaaccacaagtaactcttcaattacagattacattcgtaaa  aataacttaaaagcacctaaaaattgaagaagattatcatcttacttccttaaatacgca  taccgttaacggcgttaggtcgtcctgaaggtatcgttagttcatgtacagctaattgatcgt  tcgacgataaaatgggtgaattagttatatgaaaaataactatcaaaacgcatctgtacat  gcatttggttgatggggatcgtataatcgaacacgacacacggattacttatcttgggggt  gtcgggtgcagctcggttaaccctagattcatcaatgttgaaatcgtacacacacagcactat  gcttcatttgcagcttcaatgaataactatgctgactatgcagctacacaattacaatat  tatgggttaaaacacagcagctgctgagttatgtaggaatgggtacagttggactcactac  gctgaagtaataatttaggtggtactgacctgcccagtcacacatggatatttaagaagt  cataattatagtttatgatcaattatagcttaatttaataaaaaatatttaaaaaatg  ggtaaaatggcgccatgggtacgcaatctacaactaccctactacacacatacaaaacca  acaacaccgtcgaaaacatcaactggtaaatcaacagttgctgcaaacatgggtgctgca  caaatcaaaacacaaatagttgggtttatatactactgtatcagcaaaaaactggtaaaagca  actaatgaagttcaaaaaacatttgcgtatctaaacacagctacattaggtaatcaaaaa  ttctatcttggttcaagattacaattctggtaataaatttgggtgggttaaaagagcgat  gtggtttacaacacagctaaatcacctgtaaatgtaaatcaatcatattcaatcaaacct  ggtagcaaaactttatcagctaccttgggtgacatctaaacaagttgctggtagttgtct  ggctctggaaaccaaacttaagggttcaagcaacaacaattgataaatcaatttat  ttatatggctctgtgaatggtaaatctgggtgggttaagtaagcatatttagttgact  gctaaacctacgctcacacaacacactaagccatcaacacctacacaataataaattta  acagtttcatcatcaaacgggtgttgcctcaaatatagcttaaaaaacatggcttattcact  acagtttatgacaaaactggtagcacaaggaagttcaaaaaacatttgcgtgtaaca  aaagaagcaagtttaggtggaacaaattctacttagttaagattacaatagttccaact  ttaattgggtgggttaaaacaggtgacgttatttatacaatgcaaaatcacctgtaaat  gtaatgcaaacatatacagtaaaacacagcactaaatttatctagctaccttggggcact  tataaacagaagctgggtgcagtttctgggtacaggttaacaaacttttaagcgactaag  caacaacaatttgataaatctatctatttttgggaactgtaaatggtaaatctgggtgg  gtaagtaaaagcatatttagctgtacctgctgcacctaataaaagcagtagcacacaaaa  acagctgtaaaagcttatactgttactaaaccacaaacagcactcaaacagttagcaagatt  gctcaagttaaacaaacacactgggtattcgtgcttctgtttatgaaaaaacagcgaaa  aacgggtcggaatatgcagaccgtacgttctatgtaacaaagagcggtcctcatggtaaat  gaaacgtatgtattatcaacaatacaagccataacatcccatagggtgggttcaatgta  aaagcattaaatgttcaaaacttaggcaaaaggttaaaacgactcaaaaaataactgtt  aataaatcaataacggcttatcaatgggttcttgggtactaaaaacaaagtcatttta  acaggcaataacattgctcaaggtacatttaatgcaacgaacaaagttatcttaggcaaa  gatgtttatttatcaggtactatttaaacgcactgggtgggttaaatgcaaaagattta  actgcacaactgctgtgaaacaaactacatcagctgcaaaagattataactacacttat  gtaattaaaaatgggttaaggttatctactatgtaacacaaattctgatacagctaaatac  tcattaaagcatttaagtaacaacattcgcagttgttaagaacaagtcatttaagga  caaaacttgggtactatggtaaatctaacggtaaattagcatggattaaatcaactgat  ttagctaaagaatttaagtaataatcaaacaggtatggcattaaacaaagttgctcaa  atacaagctgggttacaatatataaacacaaagtaacagctgtaccaggttaagtggaaggt  gctaaacttaagtagtttaagcatgcaatggatcgaagcggttagctcaagatccagca  ttaaaaatcaattcttacgcttagaccaacacaaaaatttctattgataaaatataat  caattcttaaaaggtaaggtgtattagaaacaaaggtgctgcatttaacaaagctgct  caaatgtatggcattaatgaagtttatcttatctcacatgcctatttagaaacaggtaac  ggtagttctcaattagcgaaggtgcagatgttagtgaacacaaagttgtaactaactca  aacacgaataaccataacgtatttgggtattgctgcatatgataacgatcctttacgtgaa  gggtattaaatgtgtaaacagctgggtgggacacagttacaaagcaatcgttgggtgggt  gctaaattcatcggaactcatatgtaaaagctgggtcaaaatcacctttacaaaatgaga  tggaatcctgcacatccaggaacacacaaatagctacagatgttagttgggttaacatc  aatgctaaaatcatcaaaaggctactatgtaaaaattggcgaagtcggcaaatacttcgac  atcccacataataa</p>
32.	<p>atgaagggtaaatttttaaaagttagttctttattcgttgcaactttgacaacagcgaca  ctgttgagttctccagcagcaaaacgcttatcttcaaaaggctatggacaatcatccacaa  caaacgcagctcaagcaaacagcaaacacctaagattcaaaaaggcggttaaccttaaccaa  ttagaacaacgtgaacacgcaaatgttatattaccaataacagatcgtcaccacaaatcaca  gatacaacgaatgggtcattatgcacccgtaacttatctcaagttgaagcacctactgggt  acatttattgcttccggtgtagttgtaggttaagatactctttaaakraataaacacgctc  gtagatgctacgcacgggtgacccatgctttaaagcattccctcttgcaattaaaccaa  gacaattatccaaatgggtggttctactgctgaacaaatcactaaatattcagacgaaggt  gatttagcaatagttaaattctccctaatgagcaacacacaaatatttggtgaagtagtt  aaaccagcaacaatgagtaataatgctgacactcaagttacacaaatattactgtaaca  ggatattcctgggtgataaacctgtagcaacaatgtgggaagtaaaaggaataactactac  ctcaagggcgagctatgcaaatgatttaagtaacactgggtgtaattcaggttcacct  gtatttaatgaaaaaatgaagtgatcggaatttattgggncgggttaccaaatgaattt  aatgggtcggtatttatttaagaaatgtacgcaactctttaaacaataattgaagat  atccattttgccagatgaccaacctaataacccagataatcctgtaaaccttaacaatc  ctgataacccctaaacccagatgaaccaaataacccctgacaacccctaaacccctgata  atccagacaatggcgatamcaataatttcagacaactcagatgcagcttaatt</p>

33.	<p>gtgcaaaaaaagtaattgcagctattattgggacaagcgcgattagcgtgttgcggca  actcaagcaaatgcggctacaactcacacagtaaaacgggtgaatcagtggtggcaatt  tcaataaagatgggatttcgatttgctaaatataagctattaaacaatttaacatctaatt  ctaattttcccaaaccaagctactaaaagtaattcggctcaagtaattctacagtaattagt  agccgtccatcaacgaactcaggtggcggtatcactacacagtaacagcagcgactca  ttatcattaatcgcatcaaaaatgtgtacaacttaccaaaacattatgcgacttaattggt  ttaaataattttctttatttccaggtcaaaaattaaaagtaacaggtactgctagctca  agtaacgctgcgagcaatagtagccgtccatcaacgaactcaggtggcggtatcactat  acagtaacagcaggtgactcattgtcatttaattgcatcaaaaataggtacaacttatcaa  aaaattatgagcttaaatggcttaataatttctttatatatccgggtcaaaaattgaaa  gtaactggtaattgcattcagaaactcaggtatctgcaacacgacaaaatagaggttacaat  acaccagatttcagtcaccaaacttatatacatgggtcaatgtacatatcatgtattt  aatcgtcgtgtgaaattggtaaaaggtattagtagcttattggtggaatgctaataactgg  gataacgcagcggcagcagatgggttacactatcgacaatagacctactgtaggttctatc  gctcaaacagatgtaggttactatggctatgtttgtttgtagaacgtgtaataacgat  ggtagtatttttagtttcagaaatgaactattcagctgcaccaggtatttcaacttacaga  acgggtaccagcttaccaagtaataattatagatatattcac</p>
34.	<p>atgaataataaaaagacagcaacaataagaaaaggcatgataccaaatcgattaaacaaa  ttttcgataaagaagtaattctgtaggtagcttcaatttttagtagggacaacattgatt  tttgggttaagtggtcatgaagctaaagcggcagaaacatacgaatggagaattaaatcaa  tcaaaaaatgaacagcagcccaagtgagaataaaaacaaactaaaaaagttagtagtctg  caactaaaagacaatcgcgaactgcgaactgcagatcagcctaaagtgacaatgagtgat  agtgcacagttaaagaaactagtagtaacatgcaatcaccacaaaacgctacagctaat  caatctactacaaaactagcaatgtaacaacaaatgataaatacatcaactacatatagt  aatgaaactgataaaagtaatttaacacaagcaaaagatggttcaactacacctaataaca  acgactattaaaccaagaactttaaatcgcattggcagtgaaactgttgcagctccacaa  caaggaacaaaatgttaattgataaaagtacatttttcaaatattgacattgcgattgataaa  ggacatgttaatcagactactggttaaaactgaattttgggcaacttcaagtgatgtttta  aaattaaaagcaaatcacacaatcgatgattctgttaaaagggcgatacatttactttt  aaatatggtcattttccgtccaggatcagtaagattaccttcacaaactcaaaattta  tataatgcccaggtaattatttgcaaaaggattttatgtagtacaacaaacacaaaca  acataacttttcaagactatgtagatcaataacaaatgtagaggtagctttgaaacaa  gttgattttgcgaacgtaaaaaatgcaacaaactgataaaacagcttatataaattggaagta  actttaggttaagtacatatagcgaagaatcattgtcgattatggttaataaaaaagca  caaccgcttatttcaagtacaaactatattaaacaaatgaagatttatcgcgtaaatgact  gcattatgtaaatcaacctaaaaatcacatatataacaaacgctttgttactaatttaact  ggataataatttaacccaatgcaaaaaacttcaaaatttcaagagtgacagatcaaaat  caatttctgttagtatttccacctgatacttcaaaacttaaaagatttactgatcaattc  gatgttattttagtaattgataataaaacagctacagtcgatttaagaaaggccaaaca  agcagcaataaaacaaatcacatcattcaacaagttgcttatccagataatagttcaacagat  aattgaaaaattgattatactttagacactgcacaaactaaatatagttggtcaaatagt  tatcaaatgtgaattgggtcatcaactgctaatggcgaccaaagaataataatctaggt  gactatgtatgggaagatacaaaaatgaagatggtaaacagatgccaatgaaaaagggatt  aaaggtgtttatgtcattcttaagatagtaacggttaagaatttagatcgtacgacaaca  gatgaaaattggttaaatcagttcactgggttaagcaatggaacttatagtgtagagttt  tcaacaccagcgggtatacacccgacaactgcaaatgtaggtacagatgatgctgtagat  tctgtatggactaaactacaacaggtgtcattaaagacgctgacaaactgacattagatagt  ggatttctacaaaacacaaaataatagtttaggtgattatgtttggtacgacagtaataaa  gatgttaaacaaagattcgcagctgaaaaaggaattaaaggtgttaagttactttgcaaac  gaaaaagggcaagtaattgtgtacaactgaaacagatgaaaatggtaaataccgctttgat  aatttagatagtggttaataacaaagttatctttgaaaaacctgtggttactcaaaaca  ggtacaaatacaactgaagatgataaagatgcccaggtggtggcgaagttgatgtaacaatt  acggatcatgatgatttcacacttgataatggctactacgaagaagaacatcagatagc  gactcagattctgacagcgattcagactcagatagcgactcagattcagatagcgactca  gattcagacagcgattcagacagcgactcagactcagatagcgattcagattcagacagc  gactcagactcagacagcgattcagactcggatagcgactcagactcagatagcgactca  gattcggatagcgactcagactcagatagcgattcagattcagatagcgattcggactca  gacagtgattcagattcagactcagatagcgactcagattctgacagcgattcagactca  gacagcgactcagactcagacagtgattcagattcagacagcgactcagattcagatagc  gactcagactcagatagcgactcagactcagatagcgactcagactcggatagcgattca  gattcagacagcgactcagattcagatagcgattcggactcagacaaacgactcagattca  gatagcgattcagattcagatgtaggttaacatactccggctaaaccaatgagtagcggt  aaagatcagcataaaacagctaaagcattaccagaacaggttagtgaaaataataattca  aataatggcacattattcgggtgattattcggcgcattaggatcattattgtattcgggt  cgtcgtaaaaaacaaaataaa</p>
35.	<p>atggacataaaattcagaagaatacaaaacaagaggtacttatcaagacgttgctatgctt  gctgctcgatactattagaatctggtgcagaaggtacgctgtagaagataccatgaca  cgtattgcaaaaaaacttggttacagtgaaagtaacagctttgttacaacactgtcatc  cagtttactgttacattcggaatcgtttcttagaataatttagaattacctctcgagataca  aacttaataaaaaattctcaagctaaataaaatttcgctgcaaatcaaaaacatgaaatt  cttttagccgaagcaaaaacgcaacttgaaaaaatatattgttgaagcgtgacagcagct  cttccctttaaaggttttctgtagcaatgattgcaatgagtttcttatatttacaaggt  ggtagattgattgatttttaactgcgattattagcaggttagctaggaacacctagtcact  gagatttttagatcgtaagttacacgcacagtttatccagaattcattggttcattagtt  attgggattatcgccgttattggacatacacttatccacaggtgacttggcaactatt  atcattcggcgagtcagtcctattgttctggtgtatttaataacaaacgcaatacaagat  ttatttgggtgacacatgttgatttccaacgaaatcattagaagcattggttactgcg  tttggcatcgggtgctggcgttggtagcgtatttaatttttagta</p>

36.	gtgattgctataataatgaatgtaattatcgatgaagaaagagaatgctatgacatttaaat aaagtattattgagctggatagtcattatgattataaacacatgacatatactatttgg cagttggcgatatacaatgatgattttaaaccagctctattttaaactgattagattaccg agattattagaagcattggtgacaggtatgattataactgttgcaggccttatatttcaa acagtttttaataatgcattggcagatagctttacattaggattggcaagcggcgctaca tttggctcaggattagcattatttttaggttttaacaacgcttatggatttccgtatttca ataacattttagtttgataaacatttaataactgtatttagtcattacggtcggattgagccaa ggctatccagttagaattcttaataatgaagtggtttagtattggttcggttattcaattca cttctatatttttggatttttataaaacctcgcaatttaatacaattgccaatttatctg tttgggtggttttgggtgagtcagaatactcaaatgtatctataatagcaaatcacatttatc attgcatcttgggttatattatcttaactcaaatgaatttttgcatttaggagaa ctaaaagtcagtcactaggcttaaatgttcaattgattacatatatcggttattggtata gcttctatgataacggcgataaatgtcgcatatgttggcatctggttattggttattggtatg gtgataccgcgaactcattagaaaaaggcagtggaacaacatcattaggaagacaattggct ttaaatttggtaactggaggacaaaataatggttatggcagattttatttggtagccata tgtaccagtcacaaatccggcaagtatctatcgattgattatttggtagaccaggttta ttttacatgctaatatctcagtcgaaacgggttacac
37.	ttgaaaaatttagcatttgcaataaacagcaacatctgggtgcagctgcatttttaacgcac catgagtcgaagctctcacacaacatagcacaactctgggtgaatcattatggagattt gctcaaaaaatacaacactcagtagagagatttaacaaaaataacaaattagataaacaa ttggatttccctgggtcaggttatctcagtaggtggaagtgtatgcacaaaatcagctcaaac acttctcccaacagctgggttcagcatcatctcatagtacaagctgggtgaatcattaaat atcattgctagcagatattgggttttcagttgatcaatttaaggcgagcaataactcagct gggtattttaaatttgcttaaccaaacatcacaaattcttaattgggtggatcaggtgggtaca acaccacagctcaacaacaggttagcaatggcaatgcatcatctttttaccacaaaaattta tacactgctgggtcaatgtacatgggtacgtatttgacgctgctgctcaagctgggtatgcca attagacatatattgggtcagacgctaaagtattgggtcggtaaacgcagctaatgattggttac caagtaaacacacacacactcagttgggttcaattatgcacacacacgctggtccatattggt catgttgcattgttgaacgctgcaattgggtgattggttagtatcttgcatttctgaaatgaat tacacatatggtccatatacaatatgaactaccgtacaattccagcttcagaagtttctagc tatgcaattcattccat
38.	atgacagattcaatcacaaattatagatgaaaaaaagtgattgattggttatatttgcga ggtagaatttttacttggaatcaggtgctgaacatatcgagttgaagatacaatgaacgct atcgacatagttattggtcttctataatacatatagtttttgcagttcaactgcaattatt tttgcatttaaacgctgcaaacaggtacaagatttaattcgtgtacagagcgtacaacagat tttagagaaaaatcgcttttaacgaatagcttcttcagctaaaaatatcaaatcaagactcaca attgtagaagctaaatctgaatttatctattacagcatgcatcattacaattattctttt ttaaagaatttcttgcagctgccattgcatgtggcttcttctctatttattggtttgggt gtcgcatcagattggttggattgcatgctattgttggcggtaccgcatttttaactcagct tttggtaacgctcatatacaaaatataattttctcagagtttggtaacgctgctggtggt atatccattgcagccactttactaaattaggcattgcaacaaatcaagattacattact atagccaggtgctatgccactgttccctggttatatttaaccattgccattcgagattta ttagcgggtgaaattacttgcaggtatgtctcgggtgttgaagctgcattaacagcattc gcaatcgggtgctggtgctgcaatcggtttatttactcatt
39.	attgggatttttatcaaaaaattcttgatggcaataataaagaaatttaaacagttagggtaaa cttgcgtataaagattacgtctttagaagaaaaaacggcaatttttaactgtagaagaaatt cgtaataaaaacgaacaaattccaaacagaaatttagctgacattgataatgtcaaaaagcaa aatgattatttagataaaaattttaccagaagcatatgcacttgttagagaagcgtctaaa cgtgtatttcaatagtcacacatataaaagttcaaatattgggtggtattgcaattcataaa gggtgatattcgttgagatgagaacaggtgaaggttaaaacatttaacagcgacaatgcgcaaa tacttaaatgcttagctggttagaggtgttccagttattacagctcaatgaaatcattatca agtgttcaaaagtgagaagaaatggtcgtgattatataacttcttaggtttgactgctgggtata aacttaaacagtagaacgacagaagaaaaaacgtgaagcatcacgacaagacattactac agbtactaataatgagctaggtttttagattacttaccagataaacatgggtgaattattctgaa gatagagtaattgctccattacattttgcaatcattgatgaggttgactcaatttttaact gcagggcagctacgcccatttaattatttctggtgaagctgaaagctcaagctcactttat acacaagcgaatggttttgcgaaaaatgttaaaacaggacgaagattataaattacagatgaa aaaaacgaagctgtacatttaaacagacaaggtgctggaatgctgaagctgattgttcaaa ggtgaaaacttatatgatgtacaaaatgttgatgttatttagtcatatcaacacagcttta cgtgcgcagcttacattacaacgtgacgtagacttatggttgggtgagggcgaagttatta attgtgcatacaatttacaggacgtacaaatcgcaggcgtgcttccggaaggttttacac caagctattgaagcgaaggaaggttcaaatcaaaatgaattcaaaacttagcgttgcgct attacattccaaaactatttcagaatgtacataaaacttgcgggtatgacaggtgacagct aaaactgaagaagaagaatttagaaattttataacatgacagtaactcaaatccgcaca ataaaacctgtgcaacgtaacgataagctgatttaatttactatagccaaaagagttaaa tttgatcgatgtagagaagattgttggtaaaaacacagggcagggtagcaggtgctatta gggtcattgttcagttgagactctgtaattatttcaaatttacttaaaaaactggtggtc cgtcatgattgtttaaactcgcaaaaatcatgaacgtgaagctgaagcttggtagggcgtc ggacaaaaggtgctgcttactattgccactaacatggctggttgcgtggtacagatatacaa ttaggtgagggcgtagaggaattaggcgggtttagcagtaaataggtacagagcgacatgaa tctcgtgatttgaagcaggttaccgttgcgttctggagcgtcaaggtgataaaagggat agtcgcttctatttacttacaagatgaattaatgatttgcgttttgggttgaacgttta cagaaaaatgatgagccgactaggttttagatgactctacacaaattgaaatcaaaaattggtta tcaagagctgttagaactcagcacaacaaacgtgtagaaggttaataacttcgacgcccgttaa cgatctttagaatacagtagaagttattcgttaaacacacgtgaaatttctataacagaaaga aatagattatttgatgaagaagacagctctcaagttgtagatgcaatgctacgttcaacg ttacaacgtagtatacaattactatataacacagcagatgacagcctgaaattacaacca ttcatgactacattataatgacatcttcttacaagaaggtgacattacagaggtgatatac aaaggttaagatgctgaagatttttgcgaagctggttgggttaagattgaagcagcatat caaggtcaaaaagattactttagaagaacaaatgaattgaggttagcgttatgattttactt cgttctatttgatagccattggactgacatatacgacacaaatggataaatttcagtcaggt attcatttactgttcttattgcacacaaaatccattacgtgactatacaaatgaaggtcat gaattatttgatcatgatgtcaaaaattgaagaagatacttgaatttcaatttttaaaa tctgtatgacaaattgaagataaattgaacgtgaaaaaacacacagaggttgggtgaagcg aagcaggttccagctgaagattggttaagaaaaaagtgaaacacaaacatcggttaaggg gatcaagttggtcgttaacgatgattgtccatgtggttagtggttaaaaaattcaaaaattgc catgaaaaa

40.	gtgaggagagtagtgcgaatcaaaattacgactacaataaaaaatgaagatggaagtaag aagaaaaatgagtacaacagcgaaagtagtttagcatttgcgacggtatttgcattactcggg ggatttagtatttgcatttttgcattatgtagatcattcgaataaagctaaagaaacgtatg ttgaacgaaacaaagcaggaacaaaaagaaagcgtcaaaaagaaaatgcagaaaaagag agaaagaaaaagcaacagaggaaaaagagcagaatgagcttagattcacaagcaaaccaa tatcagcaattgccacagcagaatcaatatcaatatgtgccacctcagcaacagcacct acaaagcaacgctcctgctaaagaagagaatgatgataaagcatcaaaggatgagtcgaaa gataaggatgacaaagcatctcaagataaatacagatgataatcagaagaaaactgatgat aataaacaacagctcagcctaaaccacagcgcgaacacacacacaaagcgaataat aatcaacaaaacaatcaatcaaatcagcaagcaaaaccacaagcaccacaacaaaatagc caatcaacaacaaaataaacaataatgctaattgataag
41.	atgaatatgaagaaaaaagaaaaacacgcaatttcggaaaaaatcgattggcgtggcttca gtgctttaggtacgttaaatcggttttggactactcagcagtaaaagcagatgcaagt gaaaatagtggttacgcaatctgtagcgaagttaacgaaagcaaaagtaattgattcaagt agcgttagtgctgcacctaaacagacgacacaaacgtgagtgatactaaaacatcgtca aacataataatggcgaaacgagtggtggcgcaaaatccagcacaacaggaacgacacaa tcatactcaacaaatgcaactacggaagaaacgcccgttaactgggtgaagctactactacg acaaagcaatcaagctaatacacggcgaacaaactcaatcaagcaatacaaatgcccgggaa ttagtgtaatacaaacagtaatagaacgacttctaattgatactaatcagatcatctgt aatcaacctcaaaattctacaatgcccgaataatgttcaacaacgcaagatactcaact gaagcaacacctcaaaacaatgaatcagctccacagagtacagatgcaagtaataaagat gtagttaatcaacgggttaatacaagtcgcctagaatgagagcatttagtttagcggca gtagctgcagatgcacggcagctggcagagatattacgaatcagttgacgaatgtgaca gttgtagtactcgtgtagcactgtgtatccgcaccaagcagggttatgtcaactgaat tatggtttttagtgctcaatctcgtgttaaaggtagacacattcaaaataactgtac aagaataaaacttaaatggtgttaacttcaactgctaaagtgcaccaatattaggtgga gatcaagtattggcaaatggtgtaatcgatagtgatggttaattttatacatttaca gactatgtaataactaaagatgtagttaaagcaactttgacctgcccgcttatattgac cctgaaatggttaaaaagacaggtaattgtgacattggctactggcattaggtagtagaca cgaacaaacagctatttagtagattatgaaaaatggtgaagttttataacttatctatt aaaggtacaattgaccaaatcgataaaacaaataatcgtatcgtcagacaatttatgtc aatccaagtgagataacgttattgcggcgggttttaacaggtaatttaaaacaaatac gatagtaattgcattaatagatcagcaaaatacaagattaaagatatataaagtagataat cgagctgatttatctgaaagttaactttgtgaatccagaaaactttgaggtgctcactaat agtgtgaattattacattcccaaatccaaatcaataaaagtagagtttaacacgctgat gtgcaaatacaacacgctatatagtagttgttaattggtcatattgatccgaatagcaaa ggtgatttagctttacgttcaactttatatgggtataactcgaatataatttggcgctct atgtcatgggacaacgaagtagcatttaataacggatcaggttctggtgacgggtatcgat aaacaggttctctgaacacctgatgagcctgggtgaattgaacaaattccagaggat tcagattctgaccagggttcagattctggcagcagattcctaattcagatagcgggtcagat tcgggttagtattctacatcagatagtggttcagattcagcagagtgattcagattcagca agtgttcagactcagcagtgattcagattcagcaagcagattccgactcagcagcagat tccgactcagacaatgactcggattcagatagcagattctgactcagacagtgactcagat tccgacagtgactcagattcagatagcagattctgactcagacagtgactcagattcagat agcgttcagattcagatagcagattcagattccgacagtgattccgactcagacagcagat tcgattccgacagtgattccgactcagacagcagattcagattccgacagtgattccgac tcagatagcagattccgactcagatagcagattcagattcagacagcagattcagattcagac agcgttcagattcagatagcagattcagattccgacagtgactcagattccgacagtgac tcggattcagatagcagattcagattccgacagtgactcagattccgacagtgactcagac tcagacagtgattccgattcagcagtgattccgattcagatagtgattccgactccgac agtgtcggattcagatagcagactcagactcggatagcagactcggattcagatagcagat tcggactcagatagcagattcagaatcagacagcagattcagaatcagacagcagattcagat tcagacagcagactcagacagtgactcagattcagatagtgactcggattcagcagtgat tcagactcaggtagtgactccgattcatcaagtattccgactcagaaagtattcaaat agcgtattccgagtcaggttctaacaataatgtagttccgcctaattccactaaaaatggt actaatgttctaataaaaaatgaggctaaagatagtaaaagaaccattaccagatcaggt tctgaagatgaagcaaatcgtcactaatttggggattatttagcatcaataggttcatta ctacttttcagaagaaaaaaagaaaaataaagataaagaaa
42.	atgaattcaaatcagcgtaaagcatcagtgacagagagtggttgacaaaaaattttagtt ccagaatcaggaatttaataaaattattccagcttacgatgaatttaagaattcgcacaaa gtaaatggttagtaatttaactgacataaaaaactttgtagcttctgaagataaattgaat aagattgcagattcatcggcagctagttaaaattgtagataaaaaactttgtcgtaccagaa tcaaagttaggaacatttgcagagatcaaaagaaatcaataatccggtgaatttagca acaaacaatccagcttcacaacaagttgataagcattttgttgctaaaggccagaaagta aatagatttattacgcaaaacaaagtaaacaccacttcattactacgcaaaaccactac aagaaggttattacttcatacaaatcaacacatgtacataaacatgtaaatcatgcaaa gattctattataaaacactttattgttaaacatcagaatcgcttagatatacacatcca tctcaattttaaattatcaagcatcattttgcagttcctggatatacagcgcataaattt gttacaccagggcatgctagcattaaaatttaactcattttgtgttgccacaaaataaat agtttcaaggtaattccaccataggttcacaattccatcgtatgcatgtaccaagtttc caaaaataacacaacagcaacacatcaaaatgctaagtaataaagcatatgactataaa tacttctattctataaagtagttaagggtgtaagaaatatttctcattttcacaatca aatggttataaaattgggaaccatcattaaatatcaaaaatgtaaatattcaatatgct gttccaagttatagccctacacactacgttccgaatttaagggttagcttaccagcacca cgagta

43.	<p>ttggagcatacaattatgaaaaatgagaacaattgctaaaaccagtttagcactagggctt  ttaacacacggcgcaatttacagtaacgacgcaatcgggtcaaagcagaaaaatacaatca  actaaagtgtgacaaagtaccacgcttaagcagagcgatttagcaatgataaacataaca  gcaggtgcaaattcagcgacacacacagcagtaacacacagacagaaagcagcgcctaaa  ctcgaaaaggccacaaatactaatgaggaaaaaacctcagcttccaaaatagaaaaata  tcacaacctaaacaagaagcagacacacgcttaatatatcagcaacgccagcgctaaa  caagaacaattcacaaacgacacacgaatccacaacgcccgaataaagtgcacacacct  ccatcaacaacacgcgcacacacgaatgcacacacacacacacacacacacacacacac  accataaaaacagcacaacacagatatgactcctaaatagaaagttaaagagcgattat  acaaaacccgagttttgaatttgaaaagcagtttggaatttatgctcaaacctggcagcag  gttaggtttatgaatgttattccaaataggttcactataaaaatagcttttagttggaaaa  gatggaaaaaaataaaagatggaccttacgataaatatcgatgtatttatcgttttagaa  gacaataaatacaattgaaaaaatttctgtcgggtggcattcagaagactaatagtaaa  aaagttaatacacaagtagaatttaagcattactaaaaaagataatcaaggatgatttca  cgcgatgtttcagaatacatgattactaaggaagagatttcttgaaaagagcttgatttt  aaattgagaaaaacacttattgaaaaacataatctttacggtaacatgggttcaggaaaca  atcggtattaaaaatgaaaaacggtgggaaatatacgtttgaattacacaaaaactgcaa  gagcatcgatggcaggcactaatattgataacattgaagtgaatataaaa</p>
44.	<p>atgacaacaattaaaacatcaaaccttaggattcccaagattaggtagaaaaagagaatgg  aaaaaagccatcgaaagtatttgggcaaaagaagatttctaaagaagaatttagatcaaaaa  ttaactgatctacataaaagaaaatttattatcaaaaagtactatcacttagatagcattc  ccagttgggtgatttctctttatatgaccatataattagatagcgtcattattattcaacatc  atccctgaacgtttccaaggaagaactatttgatgatgatttattatttgatattgctcgc  gttaataaagaccatgttgcaagtgcaactataaaaatgggtttaacactaaactatcattac  atcgatcctgaatgggacaatgttgagcctaaagtgaagtcgcaatgatttattagatcgc  tttaaatatgcccaactctttaacgttaacgctcacctgtcattgttggttcgattact  tttgtaaattatcaaaaggcggtcaccaaaccttttgaagaaaaagttaaaacgttatta  ccactttataaagaaggttttgaatcattaatgtatgcaggtgctgagtacattcaagtt  gttagagccaatcttagttacagacgacagcgaagctatgaaaaattacacgtgaagct  tatgactatttcgaaaaagctgggtgttgctaaaaaattagtcattcaaacataactttgaa  cgtgcacatcttaaatctttaagttctttacctgttggttggtataggttttagactttgtc  catgataatggctataaccttaaacaaattgaagctggagattttgataaatcaaaaaaca  ttatagcgtggaattattgatggctgaatgtatgggcaagtgacattgaagctaaaaaa  gtcttaacatcgataaattgttagcacacactaatgaacttgctattcaacctcatcttca  ttattacatgttccagtatctttagatgatgaacatttagatagaaggttggtggaagggc  ttaagctttgcaactgaaaaatttagacgaatttagatgcattgctgcctatttaatacaa  aacgatagtggttaaatatgataaattaaaagcagcttatgagcgtttccaaaatcaatca  ttcaaaaacttagattatgatttcgaaagcgtgcgtacttcaagacaatcaccattcgcg  caacgtattgaacaacaacaaaaacgtttgaacttacgggatttccaacaacaactatt  ggatcattccccacaagccgagaagttcgaaaaacacgtgcagatttggaagaacaaacgc  attacagacgaagcatatgaaacattcttaaaaaatgaaattgctcgatggattaaaatt  caagaagacattggccttagatgtatttagttcacgggtgaatttgaacgtaatgacatgggt  gaattcttcgggagaaaaattacaaggtttcttagtaactaaattcggttggttgcaatca  tatgggtcacgtgcccgtaaaaccaccaatcatttatgggtgatgtaaaatggacagcgct  ttaactgttgatgaacagtttatgcacaaagcttaacagataaacaggttaaaaggtatg  ttaactggacctgtaacaattctaaactgggtcatttgaacgtgttgatttaccacgtaaa  gtcgttcaagatcaaatgtcttagcaatcaacgaagaagatttagcacttgaagctgca  ggaaatcaaggttaccagttgacgaacctgcattacgtgaaggcttaccattacgctct  gaatatcacgaacaatatcttaagatgctgttttatcattttaaacttgcaacgtcttca  gttcgtgatgaaactcaaatccatacacatattgtgttatctcaattcgggtcaaatcatt  catgctattcatgacttagatgctgtgttatctcaattgaaacatctcgtagccatgggt  gatttaattaaagactttgaagatttaatttatgatttaggtattgggttaggtgtatat  gatattcatagtccagctattccaacaaaagaagaatttactacagcaatcaatcggttca  ctacaacaaatcgaccgctcattattctgggttaaacctgactgtggtttaaaaacgcga  aaagaagaagaagttaaagatgcattgactgtgcttgatgctgttaaagctaaacgc  caagaa</p>
45.	<p>atgagcgacacatataaaagctacctagtagcagctactatgcttcacagctcttagcaatt  gtacttatgcccgtttctatacttactacagcatgggtcaattgcgggatttcgaagtatc  gcaacattcatattttataaagaatacttttatgaagaa</p>

46.	<p>atgttaagaggacaagaagaagaagtattagtagtaattcaataggcgtggtg  tcaagtgttagcggctacaatgtttgtgtgtcatcacatgaagcacaagcctcgga  acatcaactaatgcagcggcacaaaaaagaacactaaatcaacgggagaaacagggaat  gcgataactgtcacatcaaatgcagtcaggaagcaattagacgatatgcataaagagaat  ggtaaaagtggaaacagtgcagagaaggtaagatagcgttcaatcatcgaagcatcaatca  acacaaaatagtaaaacaatcagaacgcacaaatgataatcaagtaagcaagattctgaa  cgacaagggttctaaacagtacacacaaaataatgcgactaaataactgaacgtcaaaat  gatcaggttcaaaataccatcatgtggaacgttaaggatcacaatcgacaacgtcacaa  tcgaatgatgttgataaatacacaacccatccattccggcacaaaaggtaatacccaatcat  gataaagcagcaccaacttcaactacaccccgctctaattgataaaactgcacctaataca  acaaaagcacaagatgcaaccacggacaaacatccaaatcaacaagatacacatcaacct  gcgcatcaaatcatagatgcaaaagcaagatgatactgttcgccaagtgaacagaaacca  caagtgtggcgatttaagttaacatcatcgatgggtcaaaatccccagagaaacggacagat  aaaaatactgataaataaacaactaatcaaaagatgcgcttcaagcgcctaaaacacgttcg  actacaaatgcagcagcagatgtctaaaagggttcgaccacttaagcgaatcaagtacaa  ccacttaacaaatccaggtgtttttgtacatggatttttaggtattagtagcgataat  gcacctgtcttatatccaaattattgggtgggaataaatttaagttatcgagaattg  agaaagcaaggctataatgtacatcaagcaaggttaagtgcatttggtagtaactatgat  cgctgttagaactttattatcatataaagggtgtgcgtagattatggcgagcacat  gcagctaaatcaggacatgagcgttatgttaagacttaaaaggaatcatgcctaattgg  gaacctggtaaaaagggtacatcttgtaggcatagttgggtggtaacaaatctggtta  atggaaaggtttttaagaaatggtaacaaagaagaattgcctatcataagcgcatggt  ggagaaatataccattattcactgggtgggtcatacaaatatgggtgcataatcacaa  ttagcaaacacacataatgggttcacaagcagctgataagtttggaaatcacagaagcgtt  agaaaaatcatgttcgctttaaactcgatttatgggttaacaagatttcgaatcatgattta  ggatttaacgcaatgggctttaaacaattaccaatgagagttacattgactatataaaa  cgcttagtaaaagcaaaatttggacatcagacgacaatgtcgcctatgatttaacgtta  gatggcttcgcaaaattgaacaacatgacaagatgaatcctaataattacgtatagcact  tatacaggtgtatcatctcactgggtccattaggttatgaaatctgatttaggtaca  ttttcttaattggctacaacgagtagaattattgggtcatgatgcaagagaagaatggcgt  aaaaatgatgggtgtcgtaccaggtatttgcgtacattacatccgtccaatcaaccatttgtt  aatgttacgaatgatgaacctgccacacgcagaggtatctggcaagttaaaccaatcata  caaggatgggat</p>
47.	<p>atgattcatctcattaaagggaagatgcatcatcagttttgtgtattcatttaacaaa  gggggttgctttaaagaaatcatcttaagcacaacacaaagtcagatggcgtttt  ttgtctatagtttagtgggcatactatgtttctttattccttttacgattaaaggtaac  aacactattttcgtcgatcatgttcatctagccattcgtcattcataggtccacttatg  ccctattgtgactgatttatgttttaattgggtacagcgttaccatagtgagacgtact  tttatgacttcaatcacaaacttgggtcattacattatttaaaagtgcaggtgcaatgatc  gggtataatgtatgtatttaaaatcgggtccatcaatcattttaaagcctaactatgggtcgg  ttttgtttgaaaaaattaatgatgccattaaagtattcatttaaccagtaggtgcaattgcg  ctttctttatttagtgggctatggcttattagaatttgcggtgtttatagggacatt  atgagacctatttttaaaacaccaggaataatccgctgtcgatgcagtggttctgtttgtc  ggcagttattccttaggattattgattactaatcgtgtctataagcaaggatgtacaa  aaacgagaaagccagcattattgcgactgggttttcaacagtttcagcaacttttatgatt  atcgtttgctaaaaacttaggatttaagcgcgatttgaattttacttttggataacttta  gtcatcacatttgcgtgactgcaattactgcatggctaccgccaatcagcaatgaatca  acagaatattataacggacaagaaggagaacaagaattgctattgaagggaagcagactg  aaaactgcataatgcagaggcgatgaaacaaaatgcatttaacacattctctcgtgaagaac  gtttgggacaatttgaagacgggtttagaaatgactgttggtattttaccttctatatta  tcgatttgggttttttaggactgattgtagcgaactatacaccattcattgattgggttggc  tatattcttatccatttatttatattttcccaatttgcgtatcaggtttactagcaaaa  cgttcagcgattttctattgttagagattttctacattctttgttagtaactaaagctgca  atgagtactaaatttgcgtcgggttagtaagcgtatcagccattatcttttctcagca  ttagtgccatgtatcactagcaactgaaatttaaaatccctgctggaactcatcatcatt  tgggttttaccgctggcgttgcgtatttaataccatccccgtcgtttacttattttt  gga</p>
48.	<p>atgggtattatgaagaaacaattttactgacgatgacaactcttactttatttagtatg  tcgcttaactcggctcaagcatatcgaatgatagcaaaacattagaagaagcaagaaa  gcacacccaaacgcagcttcaaaagtgaatgaagacacccggcgtatattatcatat  gacaaaaaacaacgcgcaaaacaacatcatcaaaacagctcaggtacaaacgacaatcat  caacacgcaaatcaacgtgatcttaacaacaatcagttaccattcttcaatgaagggtcag  tatacgcacattaatgacgcaattgattcacacacacccgctcaaacgtcaccaagcaat  cctttgacaccagcaataccgaatgtcgaagcaatgacgatgaattaaataacgctttt  tcaaaagataacaaggggttattacaggcatcgatttagacgaattgtatgacgaattta  caaatcgccgaatttaatgacaaagcaagacgggtgacggttaaaccttttagcattaggt  aacggttaaaatcatgtacgctcttatcacaagtaagaacaacttatatactgctgga  caatgtacatgggtatgtctttgataaaacgtgcaaaagatggacacagcatttagtacttt  tggggagatgctaaaaactgggcaggccaagcttcaagcaatggcttcaaaagtagataga  caccacacagggatcaattttacaacacagtaaatgggtccatttgggtcatgtagcctac  gttgaaaaagttaatttgatggaagtattcatttcaagaaatgaactggatttgggtgaa  tatatcgtttcatcaagaacctctctgcttcagaagtttcatcatataattacatccat</p>
49.	<p>ttggagggtatcgtcaatgaagccttatatacaactgtttgtgttcaagcaatgggttaca  tacatcttgcgtgtaacaacattgtcatcgactcgtacttatttggatcgggtaccgt  gtagcacatgacaacttcaaaataccgattaccattcaagatttagaccaaacactgca  tcaaaatcattcgtcaataaaatatacaactcgtactatgtaactattaaaaaagtcgat  gaagtgaagcgtatattgaagatgatgttactaaaaaggaagcatttttaagtatgcaa  attccttaagggtttctctcaaaaattaaaagagaacgggtttaaagaaacagatacagtta  tatggtagagatgactttatagggtggtattgtcgtagaaattgttagtagttcattatat  gagcagcaaatcctaacattatttatgaacaccttgaggatataaacagcatcaatcc  atcgatgctatcaacaagtcctatcataaacatcacctgaattcaaaatcaaaatttgg  tcgcttactaaacagcacaacactctatttcaattagcttaactcttgcggtgatttta  ttgttagcgtgttcaagtagtacttctattcgttttaaaccaacagcagcatttgcaa  cgattatcacaatatcatttaagcgtttcaaacatatagtacttatgtaatgacacat  acgattttgttatttgggtactattggcagttagtctatatttgcctcaaccactcagc  ttaatttttactttaaatacactgttacttatattgatttatgagataggtatcgtcttt  atcttattccatattcaaacataagtcacatgatttccatgacatttataatgacatt  gctattgggtatcgtatcacttgatttttcatg</p>

50.	atgattgaggtgacagagatgaacttttttgatattccataagattccgaacaaaggcatt ccattatcgggtacaacgttaaatatggcttagaaacttcacgaagctttcttcgtatgt ttctttgtttatatggctatgtatttaattcgaacaaactttaaggcgccacacccgttt ttaaaaggaggaaattggattatctacattagaacttgggtatatcggattagcatttagt atcacgtacgggttaggaaaaacattacttggatattttgtcagtgacgttaacacaaaa cgtattatctcgttcttacttattcttgcgattacagttttaattatgggatttgtt ttaagttacttttgggtctgttaattgggatttatttaattgtactttggggacttaacggggtg ttccaatcagtttgggtggacgtgcaagttattcaacgatttcaagatggggcgccaaagaacg aaacgtggccgatacttaggattcttggaaacacacataataatcgggtgggtgcatagca gggtggtgttcactttgggggtcgttaatttcttccatggaaatgttatagggaatttct attttcccatcgggtgattgcattacttatttgggtatcgcacattatttatcggaagagat gatccggaagaatttaggattggaatcgtgctgaagaatttgggaagagccgggtcgataaa gaaaattattgattctcaaggtatgacgaaatgggagatctttaaaaaatatctctggga aatcctgttatatggattctatgtgtttcaaacgtctttgtatatacttgacgaatcgggt attgataactggggcaccgttatattgtgtcagagcatttacacttttagtaaggcgatgca gttaatacgtatttctactttgaaattgggtgcattagttgcaagtttattatggggctac gtatcagacttataaaaggctcgtcgtgcaattgttagctatttggctgtatgtttatgatt acatttgtgtcttattctacacaaatgtacaaggtgcatgaggttaacatttcatgt tttgcattaggtgctgttaattcttgggtcgcgaattatttaattgggtgcatgactggt tttgttctctaaaaatgccatcaggttagcaaaacgggaatgacaggttcatcgcgtatctta ttcgggtgactcaatggcgaaagttggtttggcggttattgtgatccaaacgtaaacggt ttaaacatctttggatatacattaaaggatggacagatgttttcatcgtcttctatgtt gcattattcttaggcattgattctatttaggaatcgttgccttctatgaagaaaagaaaatt agaagtttaaaaaatt
51.	atgacaagaagaaaaacatatataaaagcaatcgggtatttacagttttatagcgtatgt tttgcgtatcattttatatccactactgtggacatttggcatttcccttaaccaggtacg aacctgtattgtgcccacaaatgataccagacaaatgcaacattttaaaaaattatgcatctta ctattcgtatgacagtagtcaataacactgacttgggtataaaaaatcagcttatcgtatgcatct cgaattgcactgttttagtgtgatatattgtcaggttaacagcatatgcttttctagatatt cgttttgttgggtcgttaataacgggctgattacatttttggattttacaaatgttccctgtat ttaattggcaatgggtcgcacttatatttgcataaatacaattggattatttagattcttta tttggactaacactgggtatatatttgggtggtatcaataccgatgaatgccttttttagtgaaa ggttacttgcatacagattccaaaagaacttgatgaatctgccaaaatttgatgggtgcaggg cattatggctattttctacaaattatgcttccatttagctaaagccgatttttagcagttgtt gcttttgcataattttatggggccattttatggacttttatattacctaaaaatactattaaaga agtcctgaaaaattcacattagcagttggattgttcaactttattaatgataagtagca aataatttcacagttgttgcagcaggggcaattatgattgcagtagcttatagcaatcgtat ttcttgttcttgcacgctattttagtatcaggtttaacaacaggttgcgacaaaagggt
52.	gtgatggaagaaatagtagcagcgaagcgcttaattgaagcgcagatgcatcttgatgaaatg actgtggaagaggctttaattacgatgaataaagaagatcagcaagtcctcgttagcagtt cgaaaggcaataccacaattgacaaaaagtaattaaaaaaacaattgcacagtataaaaaag ggtggacgattgattttatcgggtgcaggtgcaagtggaaggttgggtgtcttagatgca gcggaggtgtgtacattacattcaataactgacctcatgaaattataggtattatttgcgtgt ggacaacatgctatgacgagtggtgttagaaggtgaggaagatcacaaaaaattagcggaa gaagatttgaaaaaatagatttaacatcaaaagatgctgcttataggaattgcccgcgag ggcaaaacgcctatgtttataggcgggttaacatttgcataacacaatcgggtgtacaca gtatctatttcatgcaatgaacatgcagttataagtgaaattgcccagtagtccagtagaa gttaaggttgggtccagaagatttaactggttcaaacacggtttaaagtcggtacagcacaa aagtttaatttaaatatgatttcaaccatcacaaatggttgggtgctggaaaaagtttacgat aacctcatgattgattgttaagcaaccaatcaaaaactgacgacctttagtgcgtattt attcaagaaaatattgctatcacatattgatgaagcaatggcgttatatcaggtatctgcag catgatgtgaaagttgcgacagttatgggtatgtgtggcatttctaaggaagaagcaaca agcgggtatttaacaaatgggtgacattgttaaacggagcaatcagagatagacaacct
53.	ttgcaatacataatttcgttatattatgatgacttttaaaaaatacacaagggggtattaat ttgaaaaagaaaaacattttatcaattcgttaacttaggtgttaggtatttgcattctgtaact taggttatcattactttatctgggtggcgttaacacctgctgcaaatgctgcgcaacacgat gaagctcaacaaaaatgctttttatcaagctttaaataatgcttaacttaaatgctgtatcaa cgcaatgggttttatccaaagccttaagatgatccaagccaaagtgctaacgttttaggt gaagctcaaaaaacttaattgactctcaagctccaaaagctgatgcgcaacaaaaaacttc aacaagatcaacaaagcgcttctatgaaatcttgaacatgcttaacttaaacgaagcg caacgttaacggcttcttcaaaagctttaaagacgacccaagccaaagcaactaacgtttta ggtagagctaaaaaattaaacgaatctcaagcaccgaaagctgataacaatttcaacaaa gaacaacaaaatgctttctatgaaatcttgaatatgcttaacttaaacgaagaacaacgc aatgggttctatccaaagcttaaaagatgacccaagccaaagtgctaacctatttgcagaa gctaaaaagtttaattgaattctcaagcaccgaaagcggtatacaaatcaacaaagaacaa caaaatgctttctatgaaatcttaccatttaccctaaacttaaacgaagaacaacgcaatggt ttcatccaaagccttaaaagatgacccaagccaaagcgttaaccttttagcagaagctaaa agctaaaatgatgctcaagcaccaaaagctgacacaaaattcaacaaagaacaacaaaat gctttctatgaaattttaccatttaccctaaacttaactgaagaacaacagcgttctatc caagccttaagagcgtatctcagtgagcaagaaatttttagcagaagctaaaaagctaa aacgatgctcaagcaccaaaagaggaagacaataacaagcctggcaagaagacaataaac aagcctggcaagaagacaacaacaaagcctggtaagaagacaacaacaaagcctggcaaa gaagacggcaacaagcctggtaagaagacaacaacaaacctggtaagaagatggcaac aagcctggtaagaagacaacaacaaacctggtaagaagacggcaacaacgctggcaaa gaagatggcaacaacacctggtaagaagatggtaacggagtagatgtcgttaaacctggt gatacagtaaatgacattgcaaaagcaaacggcactgctgacaaaaattgctgcagat aacaatttagctgataaaaacatgatcaaacctggtaagaacttgttgtgataagaag caaccagcaaacctgagatgctaaacaaagctcaagcattaccagaacatggtaagaa aatccattcatcgggtacaaactgtatttgggtgattatcattagccttaggtgcagcgtta ttagctggacgtcgtcgcgaacta

[illegible]



[illegible]

66.	MANTKKTTLDITGMTCAACSNRIEKKLNKLLDDVNAQVNLTEKATVEYNPDQHDVQEFIN TIOHLGYGVAVETVELDITGMTCAACSSRIEKKLNKMDGVQVQVNLTEQAKVDYYPPEE TDADKLVTRIQKLGYDASIKDNNDKQTSRKAEALQHKLIKLIISAVLSLPLMLMFVHLF NMHIIPALFTNPFQFILATPVQFIIIGWQFVVGAYKNLRNGGANMDVLAVGTSAAFYYSI YEMVRWLNNGSTTQPHLYFETSAVLITLILFGKYLEARAKSQTNNALGELLISLQAKEARIL KDGNEVMIPLNEVHVDTLIVKPGKEIPVDGKIIGMTAIDESMLTGESIPVEKNVDDTV IGSTMKNKGTITMTATKVGDDTALANIKVVEEAQSSKAPIQRLADIISGYFVPIVVGIA LLTFIVWITLTPGTFEPALVASISVLVIACPCALGLATPTSIMVGTGRAAENGILFKGG EFVERTHQIDTIVLDKGTITNTRPVVTDYHGDNQTLQLLATAEKDSEHPLAEAVNYAK EKQLILTETTTFKAVPGHIEATIDHHHILVGNRKLMDNDISLPKHIISDDLTHYERDGGK TAMLIIVNYSLTGIIAVADTVKDHAKDAIKQLHDMGIEVAMLTGDNKNATAQAIARQVGID TVIADILPEEKAAQIAKLQOQGGKVMVGDGVNDAPALVKADIGIAIGTGTEVAIEAADI TILGGDLMLIPKAIYASKATIRNIRQNLFWAFGYNIAGIPIAALGLLAPFWAGAMALSS VSUVTNALRLKKMRLEPRKKA
67.	MFDISIRETIDYAVENNMFSADIMVKEEMELSGKSRDEVRAQMKQNLDMRDAVIKGTGD GVESVTGVTGHDAKLDRYNETHALSGYEMIDAVKGAIAITNEVNAAMGIIICATPTAGSS GTIPGALFKLEKTHDLTEEOMIDFLFTSALFGRVVANNASVAGATGCCQAEVGSASAMAA AAAVAIFGGSPEASGHAMALAI SNLLGLVCDPVAGLVEIPCVMRNAIGSGNALISADLAL AGIESRI PVDEVI EAMDKVGRNLPASLRETGLGGLAGTPTGEAIKRRKIFGTAE DMVKN
68.	MKNLRLRYGIRKHKLGAAVFLGTMTIVVMGQDKEAAASEQKTTTVEENGNSATDNKTSET QTTATNMVNHIEETQSYNATVTEQPSNATQVTTTEAPKVAQAPQTAQPANIEVKEEVVKE EAKPQVKETTSQDQSGDQROVDLT PKKATQNVAEQVEVAQPRTASESKPRVTRADV AEAKEASNAKVETGTDVTSKVTVEIGSIEGHNNNTNKVEPHAGQRAVLKYKLFENGLHQG DYFDFTLNNVTHGVSTARKVPEIKNGSVVMATGEVLEGGKIRYFTTNDIEDKVDVTAE LEINLFDPKTVOQTNQTTITSLNEEQTSKELDVYKIDGIGNYANLNGSIEFTFNKANN RFSHVAIFKPNNGKTTSVTGTGLMKGSNGQNGQPKVIRFEYLGNNEDIAKSVYANTTDT SKFKEVTNMGSLNQLNNGSYSLNENLDKTYVHYDGEVNGTDEVDFTQMVGHPEQ LYKYYDRGYTLTWDNGLVLYSNKANGNGKNGPIIQNNKFEYKEDTIKETLTGQYDKNLV TTVEEYDSSTLDIDYHTAIDGGGGYVDGYIETIETDSSAIDIDYHTAVDSEAGHVGGY TESSEESNPIDFEESTHENSXKHADVVEEEDTNPGGGQVTTESNLVEFDEESTKGI VGT AVSDHTTVEDTKEYTTESNLIELVDELPEEHGQAQGPVEETENNHHI SHSGLGTENGHG NYDVEEIEENSHVDIKSELGYEGGQNSGNQSFEDTEEDKPKYEQGGNIVDIDFDSVPQ IHGQNGKQNSFEEDTEKDKPKYEHGGNIIDIDFDSVPHIHGFKHTEIEEDTNKDKPSY QFGGHNSVDFEEDTLPKVSGQNEGQTTIEEDTTPPIVPTPTPEVPSEPETPTPTPEV PSEPETPTPTPEVPSEPETPTPTPEVPPEPCKPVPVPAKEPKPKSKPVEQKQVTPVI EINEXKVAVATPKKQSKSEL PETGGEESTNKGMGLPGGLFSLILGLALLRRNKNKHA
69.	LHLRENIIVKSNLRYGIRKHKLGAAVFLGTMTIVVMGQDKEAAASEQNTTVEESGSSA TESKASETQTTNNVNTIDETQSYSATSTEQPSQSTQVTTTEAPKTVQAPKVTESRVDLP SEKADKETTGTVQVDAQPSNVSEIKPRMKRSTDTVAEKEVVEETKATGTDVINKVEV EESSEIIVGHKQDITNVNPHNAERVTLKYKWKFGGEGIKAGDYDFTLSDNVETHGISTLRK VPEIKSTDGQVMATGEIIGERKVRVTFKVEYVQEKDOLTAELSLNLFIDPTTVTQKGNQNV EVKIGETTVSKLFNIQYLGVRDNDWGTANGRIDTLNKVDGKFSHFAYMKPNQSLSSVT VTGQVTKGNKPGVNNPTVKVYKHIGSDDLAESVYAKLDDVSKFEDVTNMSLDFDTNGGY SLANFNMLDQSKNYVIKYEYGYDSNASNLEFQTHLFGYNNYYTSLNWKNGVAFYSNNAQ GDGDKLKEPIIEHSTPIELEPKSEPPVEKHELTGTIESNDSKPIDFYEHTAVEGAEGH AEGTETEEDS IHVDFEESTHENSXKHADVVEEEDTNPGGGQVTTESNLVEFDEESTKGI IVTGAVSHTTIEDTKEYTTESNLIELVDELPEEHGQAQGPVEETENNHHI SHSGLGTE NGHNGYVIEEIEENSHVDIKSELGYEGGQNSGNQSFEDTEEDKPKYEQGGNIVDIDFDS VSPQIHGQNGKQNSFEEDTEKDKPKYEQGGNIIDIDFDSVPHIHGFKHTEIEEDTNKD KPNYQFGGHNSVDFEEDTLPOVSGHNEGQTTIEEDTTPPIVPTPTPEVPSEPETPTPT TPEVPSEPETPTPTPEVPTEPGKPIPPAKEEPKPKSKPVEQKQVTPVIEINEXKVAV PTKKAQSKSEL PETGGEESTNNGMLPGGLFSLILGLALLRRNKNKHA
70.	MQMRDKKGVNKRVDL SNKLNKYSIRKFTVGTASLILGSLMYLGTQOEAAEANNIENP TTLKDNVQSKVEKIEEVNTKDTAPQGVAKSEVTSNKDTIEHEPSVKAEDISKEDTPKE VADVAEVQPKSSVTHNAETPKVRKARSVDEGSFDITRDSKNVVESTPIITQKKEHFEYGY SVDTQKKTDLGVSEVTRFVNGNESNLIGALQLKNKIDF SKDFNFKVRVANNHQSNTTG ADGWGLFSGKNAEYLINGGILGDKGLVNSGGFKIDTGYIYTSSMDKTEKQAGQGRGY GAFVKNDSSGNQMVGENIDKSKTNFLNADNNTNTSDGKPHGQRLNDVLLTYVASTGKM RAEYAGKTWETSITDLGLSKNQAYNFLTSSQRWGLNQGINANGWMRTDLKGSEFTTPE APKTIIELEKKVEEIPFKKERKFNPD LAPGTEKVTREBQKGEKTIITPTLNKPLTGVLIIS KGEPEKEETKDPINELTEYGPETIAPGHRDEFDPKLPTEKEEVPGKPGKPNPETGDIVR PPVDSVTYKPGPVKDSIVEKEEIPFKKERKFNPD LAPGTEKVTREBQKGEKTIITPTLNK PLTGEIISKGESKEEITKDPINELTEYGPETITPGHRDEFDPKLPTEKEEVPGKPGIKN PETGDIVRPPVDSVTYKPGPVKDSIVEKEEIPFKKERKFNPD LAPGTEKVTREBQKGEK ITPTPTLNKPLTGEIISKGESKEEITKDPINELTEYGPETITPGHRDEFDPKLPTEKEEV PGKPGIKNPETGDIVRPPVDSVTYKPGPVKDSIVEKEEIPFKKERKFNPD LAPGTEKVT EGQKGEKTIITPTLNKPLTGEIISKGESKEEITKDPVNETEPGGEKIPQGHKIDIFDNL PTDQTEKVPKPGIKNPDTGKVIIEPVDVVIKHGPKTGTPTKTVIIEPETKREFNPKLQ PGEERVQEGQPGSKTIITPTITVNPLTGEKVGEGQPTTEITKQPVDKIVEFGGKPKDPK GFENPEKPSRPTSPGPNPNPGLSKDRAPNGPVHSMKDKNDKVKKSKIAKESVANQEK KRAELPKTGLESTQKGLIFSSIIIGIAGLMLLARRRN
71.	MKNKYI SKLLVGAATITLATMI SNGEAKASENTQOTSTKHQTTQNNYVTDQQAFAFYQVLH LKGITEEQRNOYIKTLREHPERAQEVFSESLKDSKNPDRRVAQONAFYNVLKNDL TEQE KNNYIAQIKENPDRSQQVWVESVQSSKAKERQNIENADKAIDFQDNKAPHDKSAAEYAN SKLPKDLRDKNNRFVEKVSIEKAIVRHDERVKSANDAI SKLNEKDSIENRRLAOREVNKA PMDVKEHLQQLDALVAQDAEKVAPKVEAPQIQSPQIEKPKVESPKVEVPQIQSPKVE VPQSKLLGYQSLKDSFNKYGYLTDYKSYKEKYDTAKYYNYNTYKYKGAIDQTVLTVL GSGSKSYIQPLKVDKNGYLAKSYAQRVNYTESINTGKVLTYFYQNPVTVKTAIKAQET ASSIKNTLSNLLSFWK
72.	MAVFSKEKKRGCIIVVETFKAFVIDKDESGKVTPTFKQLSPTDLPGDVLIKVHYSGINY KDALATQDHNNAVKSYPMPIDLAGTIVESEAPGFEKGEQVITSYDLGVSHYGGFSEY ARVKSEWI IKLPDTLLEESMIYGTAGYTAGLAIERLEKVGMINIEDGPVLVRGASGGVGT LAVLMLNELGYKVIASITGKQDVSDQLLELGAKEVIDRLPVEDDHKKPLASSTWQACVDPV GAGNIYVTKRLNHSISIAVIGMTAGNTYTNVFPHILRGVNLGIDSVP TAMKLRQRVW RRLAKDLMPENLHEIKQVITFDELEQLNKVIKHENKGRIVIDFGVDK
73.	MKLLVATTTLTAGIGTALVGQAYHADAENYTNYNYNNTTQTTTTTTTTSSISHS GNLYTAKQCTWVYDKVGEIGSTWGNANNWAAAQAGAGTAVNHTPSKGAILQSSSEGPFG HVAYVESVNSDGSVTI SEMNYSGGFFSVSSRTISASEAGNYNYIHI

[illegible]

[illegible]

91.	MGFLSKILDGNNKEIKQLGLKADKVALEEKTAITLDEIRNKTQFQTELADIDNVKKQ NDYLDKILPAPYALVRGSGKRVFNMTPYKQVQTMGGIAIHKGDIAEMRTGEGKTLTATMPT YLNALAGRGVHVITVNEYLVSSVQSEMAELYNFLGLTNLMSKTEEKREAEATQIDTY STNNELGFDYLRDMNVNYSEDVRMRPLHFAIIDEVDSILIDEARTPLIISGEAEKSTSLY TQANVFAMKLQDEDEYKDEKTKAVHILTEQGADKAERMFVENLYDVQNVDSIHSINTAL RAHVTLQRDQVDYVMDVDEVLIVDQFTGRTMPGRFRSEGLHQAIEAEGVQIQNESKTMAS ITPQNYFRMKNLQAGMTGTAKTEEEEFNRNIYNTMTVQIPFNKPVQNDKSDLIYISQKGA FDAVVEDVVEKKHAGQPVLLGTVAVETSEYISNLLKKRGIRHVDVNAKNKREAEATVAGA QGGKAVTIAITMAGRGDTIKLGEVVEELGGLAVIGTERHESRRIIDQLRGRSGRQGDGKD SREYLSIQDELMIRFGRSERLQKMSRLGLDDSTPIESKMVSRAVESAKQKRVGNMFARK RILEYDEVLRKQREIYNERNSIIDEEDSSQVVDAMLSTLQRSINYINTADDEPEYQF FIDYINDIFLQEGDITEDDIKGDADIEDIFEVVWAKIEAAYQSOKDILEEQMNEFERMILL RSIDSHWTDHIDTMDQLRQGIHLRSYAQQNPLRDYQNGHELFIDMONGIIEEDTKCFILK SVQVQVEDNIEREKTTTEFGAEKHVSADGKEKVKPKPIVKGQDQVGRNDDCPCGSGKFKNC HGK
92.	MRESMSNQNYDYNKNEDGSKKKMSTTAKVVSIATVLLLLGGLVFAIFAYVDHNSNAKERM LNEQKQEQKEKQKQENAEKERRKKQKEEKEQNELDSQANQYQQLPQONQYQVPPQQAQ TKRQPAKEBNDKASKDESKDDKASQDKSDNDQKTDNDKQPAQKPPQPPQPPKPN NQONNQSNQQAQKPAQPAQNSQSTTNKQNNANDK
93.	MNMKKKEKHAIRKKSIGVASVLVGTGLIGFLGLSSKEADASSENSVQPSQDSASNESKSDSS SVSAAPKTDNTDNTSDTKTSNTNNGETSVQAQPAQEQTTQSSSTNATTEETPVTEATTT TTNQANTPATTPQSSNTAEELVNQTSNETTNDNTVTVSVNSPQNSNAENVSNTQDST EATPSNNESAPOSSTDANSKQVNVQAVNTSAPRMRASLAAVAADPAAGDTITNQLTNT VGIDSGTITVYHQAGVYKLVNYSFVSPNSAVKGDFTKLTVPKELNLNGVTSTAKVPPIMAG DQVLANGVIDSDGNVITYFTDYVNTKDDVKAATLTPAYIDPENVKKTVNLTAIGISTT ANKTVLVDEYKGYKFNLSIKGTIDQIDKTNNTYRQTIYVNPSGDNVIAPLVTGNLKENT DSNALIDQONTSIKIVYKVDNAADLSESYFVNPENFEDVTNSVNTIPFNPQYKVEFNTPD DQITTPYIVVNGHIDPNSKGDALRLSTLYGYNSNIWRSMSWNEVAFNPNESGSGDGI KPVVPEQDEPEGETEPIPEDSDSDPGSDSGSDSNSDSDSGSDSDSDSDSDSDSDSDSD SD SD SD SD SD SD SDESEANTSLIWLGLLASIGSLLFLRRKKENKDKK
94.	MNSNHAKASVTESDVKFVVPESGINKIIIPAYDEFKNSPKVNVSNLTDNKNFVASEDKLN KIDASSAASKIVDKNFVVPESKLGNIIVPEYKEINNRNVNATNPNPASQVQKHVFAGKPEV NRRITQKNVNHFIITQTHYKKVITSYKSTHVHKVNHAKDSINKHPIVKPESFVPTHTP QSLSIKHFFAVPGYHAKFVTPGHASIKLNHPCVVPQINSFKVIPPYGHNSHRMHVPSF QONTTATHQNAKVNKAYDYKYFYSYKVVKGVKYFSPSQSNGYKIGKPSLNKKNVNYQYA VPSYSPHYVPEFKGSLPAPRV
95.	LEHTIMKMTTAKTSLALGLLTTGAIITVTTQSVKAEEKIQSTKQVDKVPKTLAKERLAMINT AGANSATTOAANTQERTPKLEKAPNTNEEKTSASKEIKSQPKQEQEKTALNIATPAPK QEOSQPTTESTTPKTKVTTPSTNTPQPMQSTKSDTPQSTPTIKQAQDTMTPKYEDLRAAY TKSPFEFEKQFGFMLKPWTTVRFMNVPNRFIYKIALVKGDEKQKDGPDYONIDFVILE DNKYQLKKYSVGGITKTSKKNVNHKVELSITKKDNQGMISRDVSEYMITKEEISLKELD KLRLQLIEKHNLYGNMGSGTIVIKMKGNGKTYTFELHKKLEHRRMAGNTIDNIEVNK
96.	MTYIKTNSLNGFLRGLKREWKKAIESYWAKKISKEELDQTLTDLHKNELLQKHYHLDISI PVGDFSLYDHLITDLSLENNIIPERFQGRITDDDLLFDIARGNKDHVASALLKWFMTNHYI IYPEMDNEVPEKVSRLVLDLRFKYAQSLNVAHPVTVGPIFVFLSKGGHGTPEEKKVLL PLYKEVFESLIDAGAEYIQVDEPILVTDSDSESYENITREAYDYFEKAGVAKKLVQITYFE RAHLKFLSSLPVGGIIGLDFVHDNGYNLQKIEAGDFDKSKTLYAGIDGNRNWASDEIAEK VLIDKLLAHTNELVITQPSSSLHVPVSLDDDETLDTSVGEGLSFATEKLDLDELARLFEN NDVSKYDKLKARYERFQNSQFKNLDYDFESVRTSRQSPFAQRIEQQKRLNLPDLPITTI GSFPQSRREVRYKADWNKKNRITDEAYETFLKNEIARWIKIQEDIGLDVLVHGEFERNDMV EFFGEKLGFLVTKFGWVQSYGSAVKKPIIYGDVVKWAPLTVDETUYAQSULTDKPVKGM LTGPVTLNWSFERVDLPRKVVQDQIALANEVLALEAGIKVIQVDEPALREGDLPLRS EYHEQLKDAVLSFKLATSSVRDETQIHTHMCYSQFGQIHAHIDLADAVISIESTRSHG DLIKDFEDINDYDLGIGLVYDIHSPIPTKEETITAINRSLQQIDRSLSLFWNPDGCLKTR KEEVKDALTVLVNAVAKRQE
97.	MSDTYKSYLVAVLCTVLAIVLMPFLYFTTAWSIAGFASIAITFIFYKEYFYEE
98.	MLRGQEEERKYSIRKYSIGVSVLAATFMVSSHEAQASEKSTNAAQAQKETLNQPGQGN AITSHQMQSGKGLDMMKENGKSGTVEGKDTLQSSKSTQNSKTIKTQNDNQVQKDE RQGSQSQSHQNNATNTNRQNDQVQNTTHAERNQSSTTSQSDNDVDSQSPSTPAQKVI DKAAPTSTTPPSNDKTAAPKSTKAQDATTDXHPNQDTHQPAHQIDAKQDDTVTRQSEKQ QVGLDSKHIDGQNSPEKPTDKNTDNKQLIKDALQAPKTRSTNTNAAADAKVRPLKANVQ PLNKYPVVVFHGFGLGVDGNAPALYPNYWGGNKFKVIEELRKQGVNVHQAQSVAFPSNYD RAVELYIYKGGRVFLGVAHAHAAYGYHERYKTYGKIMPNWEPGKRVHLVHGSMDGQTLRL MEEFPLNRGNKEIEAYHKAHGBEISPLFTGGHNNMVASITTLATPHNGSQADKGNTEAR RKIMFALNRMFNGKYNISDNLGLTOWGFQKLPNEYSIDYIKRVKSQIWTSDNNAAYDLTL DGSAKLNMTSMNPNTITYTITYTGVSSHTGPLGYENPDLGTFFLMATTSSRIIGHDAREBWR KNDGVVPVIVSSLHPSQPFVNVNTNDEPATRRGIWQVQKPIIQGWD
99.	MHILIKGMHHTVLCTHNLNKGVALMNQYHSNAQPSAWRFFVYSLVLGILCFFIPPTINGN NTIFVHDVHLAIRSTIIGLPMYVALIMILIGTALPVRRTFMTSTNLNVLTFKVKAGAMI GIMVYLTIGPSLTFKANYGPFLEKLMPLSILIPVGAIALSLVGVGLLEFVGYMEPI MRPIFKTPGKSADVAVASFVGSYSLGLLITNRVYKQGMYNKREATIATGFSVSATFMI IVARTGLMPHWNLYFWTLVITFVVTATIAWLPPISTNESTEYNGQEGEQAIEGSR KTAAYAKMQUALFTSVKVNWDNLKDGLMTEVGLPSILSIGFLGLVANTYPTPIDWLG YVFPFIIYIPIADQALAKASAIIVEMFLPSLLVTKAAMSTKVVGVSVSAIIFFA LVPCILATEIKIPVKKLIILWPLRVALSLLITIPVALIFG
100.	MVIMKKTILLTWTTLTFSMSPNSAQAYTNDSTKLEEAKKHPNAQFKVNKDTGAYTYTY DKNNTPNNNHQNQSTRTNDNHQANQRDLNNQYHSSLSGQYTLINDALDSHTPPQTPSPN PLTPAIPNVEDNDDELNAFSDKNKGLITGIDLELDEQYIAEFNRKAKTADGKPLAG NGKILIDQPLTISKNNLYTAGOCTWYVFDKRAKDGHITSTFWGDKNWAGQASNGEFKYDR HPTRGSLIOTVNGPPGHVAYVEKVNIDGSLISENNWIGEYIVSSRTISASEVSYNYTH

101.	MEVSSMKPYIQLVVFQKWLQYILLVTTIVIALVLIGYRVAHDNFKIPITIQDLDDQTTA SKSPFNKIKQSDYVTKKQVDEDESYIEDDVTKKEAILSMQIPKGPQSKLKENRLKETIQL YGRDDFIGGIAVEIVSSSLYEQQIPNIIYEHELEDMKQHSIDAINKSYHKHTPESKIKFV SLTKQAQHSISISILIFAVILFVSAVQVVLHYRLNQQAALQRLSQYHLSRFKLYSTYVMT TILLLLVLAVSLYLSQPLSLIFYLKSLLLILYIEIGIVFILFHIQITISHRLFMFTFIYAL AMGVYLLIIFM
102.	MIEVTEMNFFDIHKIPNKGIPLSVQRKLWLRNFMQAFFVVFVYMYLIRNNFKAAQPF LKEEIGLSTLELGYIGLAFSITYGLGKTLGYFVDRNTKRIISFLILSAITVLMIGFV LSYFGSVMGLLIWLWGLNGVFSVGGPASYSTISRWAPRTKRGYLGFWNTSHNIGGAIA GGVALWGANVFFHGNVIGMFIFPSVIALIGIATLFIGKDDPEELGWNRAEEIWEPEVDK ENIDSGQMTKWEIFKKYILGNPNVILCVSNVVFYIVRIGIDNWAPLYVSEHLHFSKGD VNTIFYFEIGALVASLLWGYVSDLLKGRRAIVAIGCMFMTFVVLPTNATSVMMVNISL FALGALIPGPQLLIGVSLTGEVFPKNASIVANGMTGSFAYLFGDSMAKVGLAAIADPTRNG LNFYGYTLGWTDFVIFVYVALFLGMILLGIVAFYEKKIRSLKI
103.	MTKKKNILKAIGIYSFIAMMFVIIILYPLLWTFGISLNPCTNLYGAKMIPDNATFKNYAFL LFDDSSQYLTYWKNTLIVASANALFSVIFVTLTAYAFSRYRFGVKRYGLITFLILQMPFV LMAMVAIYILLNTIGLLDSLGLTLVYIGGSIPMNAFLVKGYFDITPKELDESADKIDGAG HMRIPLQMLPLAKPILAVVALFNMGPFFMDFILPKILLRSPEKPTLAVGLFNFINDKYA NNFTVFAAGAIMTAVPIATVFLFQRYLVSLGTGTGATKG
104.	MNENSTTEARNEATMHLDEMTVEEALITMNKEDQVPLAVRKAIPLTKVILKKTIAQYKK GGRLIYIGAGTSGRLGVLDAECVPTFNTDPHEITIGIAGGQHAMTMAVEGAEDHKLAEB EDLKNIDLTSKDVVIGIAASGKTPYVIGGLTFANTIGATTVSISCNEHAVISEIAQYPVE VKVGPEVLGTSTRLKSGTAQKLILNMITITMVGKGVYDNLMDIVKATNQKLIDRSVRI IQEICAITYDEAMALYQVSEHDVKVATVMGCMGISEEATRRLNNGDIVKRAIRDROP
105.	LQYIIRYIMMTLQIHTGGINLKKKNISIRKLGVGSIASVTGLTLLISCGVTPAANAQHD EAQQNAFYQVLNMPNLNADQRNGFIQSLKDDPSQSANVLGEAQKLNDSQAPKADAQQNMF NKDQOQSAFYEILNMPNLNEAQRNGFIQSLKDDPSQSTNVLGEAKKLNESQAPKADNNFNK EQONAFYEILNMPNLNEEQRNGFIQSLKDDPSQSANLLSEAKKLNESQAPKADNKNKEQ QNAFYEILHLNPNLNEEQRNGFIQSLKDDPSQSANLLAEAKKLNDAQAPKADNKNKEQON AFYEILHLNPNLNEEQRNGFIQSLKDDPSVSKETLAEAKKLNDAQAPKEEDNKKPGKEDNN KPGKEDNKKPGKEDNKKPGKEDGKNKPGKEDGKNKPGKEDGKNKPGKEDGKNKPGK EDGKNKPGKEDGNGVHVVKPGDTVNDIAKANGTADKIAADNKLADKNMIFQGEIVVDK QFANHADANKAQAIPETGEENPFITTVFPGGLSLALGAALLAGRRREL
106.	MDKKSEKRGIKMTVQSAVYIHPFCVRICTYCFNKFYIQNPQVDEYLDALITEMSTAKYR ILKTMVYVGGGTPALTSINQLERLLKAIIRDFTITGEYTFEANPDELTKKVLLEKYGK RISMGVQTQKPELLSVLGRTHNTEDIYTVLNAKNAGIKSISLDLMYHLPKQTEIDFQ LDLALDMDQHIISYGLILEPKTQFYNMYRKLKLPLEDGLADMYQLMSKIEQSPFHQ YEISNFAIDGHESEHNKVVYWFNEEYGFAGAGSGYVDGVRYTNINPNVNHYTKAINKESKA ILVSNKPSLTERMEEMFLGLRLNEGVSSSRFKKFDQSIESVFGQTINNLKEKELIVEK NDVIALTRNGKVIQNEVFEEFLIND
107.	atgaatgtattagtaatttgggtgctggtggagcagaacatgcacttgcatataaaactta caatcgaatctagtttaacaagtggtttgctcatccaggtaaatgaggcaatgacacctata cgtgaagtacacactgaaatttcagaacctgatcatcaagcgatactagattttgctaaa cggcaaaatgttgattgggttagttataggtccagaaacagccgctaatttgatggatagca gacattttacgagcggaatggtttcaaatggtttggtccaaataagcaagcagctcaaatc gaaggtcctcaaaatatttgcataaaagataatggaaaaatataatattccaactgctgat tataaagaagttgagcgaataaaggatgctttaacatatattgaaaactgtgaattgccc gttgttgcataaagaatgggttagctgctgggaaggcgttattattgcagatactatt gaagcagccagaagtgctattgagattatgtagtggtgatgaagaagaaggtactgtgta tttgaacggttttagaaggtgaagagttctcgctaatgacatttggtaattggtgattta gcagttacctttcgactgtattgcacaagatcataaacgcgcatttgatcatgatgaagga ccaaatctcgttggttatgggggcttattgtccagttaccacatatattgtgacgatgtttta aaactcacaataaagaacattgcacacacccattgcaaaaggcaatgcttaataagaggttat caattcttcggtgtattatacattggtgctattttaactaaagatggtccaaaagtaata gaattcttcgcccgttttgggtgactcctgaagctcaagattatttaagtgcgtaggaaagt gatttaatgcagcatattattgatttagatgaaggaaaacgtactgaattcaaatggaaa aatgaatctattttaggggtcatgttggcatcaaaaggatattcctgatgcataatgaaaa gggcataaagtaagtggttattgatttaaatgaaaactattttgttagtggttaaaagag caaggtgatacctttgttacttcaggtggttagagttatacttgccatcggaagaggtgac aatgtacaagatgcacagcgagacgcatacaaaaagatgcacaaatacaagtgaccat ttattctatcgctcatgacattgcgaataaagcactacaacttaaa
108.	MNVLVIGAGGREHALAYKLNQSNLVKQVFIQNEAMTPIAEVHTEISEPDHQAILDFAK RONVDWVVGPEQPLIDGLADILRANGFKVFGPNKQAAQIEGSKLFAKKIMEKYNIPTAD YFEVERKKDALTYIENCFLPVVKKDGLAAGKGVIIADTIEAARSATIEIMYGDEEGTVV FTFLEGEFSLMTFVNGDLAVFPDCLAQDHKRAFHDHDEGNTGGMGAYCPVPHISDDVL KLINETIAQPIAKAMLENGYQPFQVLYIGAILTKDGPVIEFNARFGDPEAQVLLSRMES DLMQHIIDLDEGKRETFKWKNEISIVGMLASKGYPDAYEKGHKVSQFDLNENYFVSGLKK QGDFTVTSGGRVILAIGKGDNVQDAQRDAYKKVSQIQSDHLFYRHDIAKALQLK
109.	atgcaaccacatttaatatgtctagacttagacggaacattattaaacgataacaaagaa atttcatcatataactaaacagattataatgaattacaacaacgtggacaccaaattatg attgcgactggcagaccttatcgtagcaggtcaaatgtattatcatgaattaaattacg acaccaattgttaatttaattggcgcttagctacatcacccataagataaaaaacttcaaa acttgccatgaaatttttagatttaggcacgcacacaaacattattcaaggattacaacaa tatcaagtatcgaaatttatagcagaagtgaaagattatgttttcattaaacatcatgat ccaagattatttgaaggttttcaatgggtaattccaagaattcaaaactggtaatttactt gtccacttgaagaataccctacctcaattttaattgaagccgaagaagtaaaatacct gaatacaaaaataatgcttactcatttttatgcgatcataattgagcatcgacgctggggc gcaccattccctgtcattgaaattgtaaaacttggtattataaagcaagagcattgag caagttagacaatttttaaatattgaccgaaataataattattgcatcgggtgatgaagat aatgatattgaaatgattgagtagcgcgctcacggtgttgctatggaaaatggtttgcaa gaacttaagatgtagcgaacaaattacattcaacaataatgaagatggcattggtcga taattgaatgatttctttaatttaaatatttagatattactgt
110.	MQPHLLCLDLGTLNDNKEISSYTKQVLNELQQRGHQIMATGRPYRASQMYHELNL TPIVNPNFVHHPKDKNFKTCEILDLGLAQNIILQGLQQVQVSNIIAEVKDYVFINNHD PRLFEFGSMGNPRIQTGNLLVHLKESPTSILIEAESKIPEIKNMLTHEFYADHIEHRRWG APFPVIEIVKLGINKARGIEQVRQFLNIDRNIIAFGDEDNDEMIETARHGVMENGLQ ELKDVANNITFNNNEDGIGRYLNDFFNLNIRYYC

111.	gtgaaccaatgggctaagtctaatagttaaagacatcggttttaattggagccggtgtactt agcacacaatttgggttcaatgtttaaagaaattgagccagactggaatatccacgtttac gaacgcttggatcgctcctgcaatcgaaagttcaaacgaaagaaataatgctgtgacgggt catgcagcattatgtgagttgaactacacagttttacaacctgagtggttctatcgacatc gaaaaagcgaaagtgattaacgaagagtttgagatttcaaaacaattctggggtcactta gtgaaaagcggtagcatcgagaacccaagagaatttatcaatccattaccacacatcagtt tatgttagaggtaaaaacaatgtttaaattctttaaagatcggttacgaagcgatgaaagct ttccctatgttcgataataatcgaaataactgaagacatcgaaagtaataaaaaatggatt ccattgatgatgaaagggcgtgaagataaccctgggtatcatggcggaagtaaaattgac gaaggtacagatgtaaaacttcggtgaattaacacgttaaaatggctaaaagcatgaaagca catccaaatgctacagtgcaatttaaccatgaagttgttgattttgaacaattatcaaat gggtcaattgggaagtactgttaaaaatcgcttaactgggtgagaaattcaaacagtaact gactacgtattcatcggtgctggcggtggagcaattccattattacaaaaaacaggtatc cctgaaagtaaacatttgggtggattccctatcagtggtcaattcttagcttgtacaaac ccacaagttattgaacaacacagatgccaaagtttatggtaaagagccacctggtacacca ccaatgactgtacctcatttagatagcggttacattgatggctcaagaacattattattt ggaccatttgcataatgttggacctaattcttgaaaaatgggttcaacttagatttattc aagtctgtttaaacaatacaacattacaactttattagcagcagcagttaaaaacttacct ttaatataactcattttgaccaagtaattatgacaaaagaaggttgatgaaccactta cgtactttctatccagaagcagtaataagattggcaattatcactgctggttaaacgt gtacaagttatcaagatacacctgaacacggttaaggtatcccaattcgggtacagaa gtggttaactcacaagaccacactgtaattgcatattaggtgaatcaccaggggcttca acttcagtttcagttgctgtagaagatttagaacgtaacttcctgaaatacaaaactgaa tgggcacctaataataagaaaatgattccatcacagtgtaacttaattgaagacgaa aaattaatgagaaaaatccgtaacaaacttcaaaagacttagaattaggttactacgaa aac
112.	MKPMASNSKDIVLIGAGVLTTFGSMLEKEIPDNHIVHYERLDRPAIESSNERNNAGTG HAALCENLVTLQPDGSDIEKAKVINEEFESKQFWGHLVKSGSIENPREFINPLPHIS YVRGNNVFKLDRYRAMKAFPMFDNI EYTEDIEVMKKWIPLMKGREDNPGIMAASKID EGTDVNFGELETRKMAKSIEAHFNATVQFNHEVVDFEQLSNGQWEVTVKNRLTGEKFKQVT DYVFIAGGGGAIPLLOKGTGIPESKHLGGFPI SQGLACTNPGVIEQHDARKVYKPEPGTP PMTPHALDTRYIDGQRTLFLGPPFANVGPFLKNGSNLDLFKSVKTYNITLLAAAVKNLP LLIKYSFDQVIMTKGCMNHLRTFYPEARNEWQLYTAGKRVQIKDTPHEGKGFIQFGTE VVNSQDHTVIALLGESPGASTSVSVALEVLERNFPEYKTEWAPKIKKMI PSYGESLIEDE KLMRKIRKQTSKDLLELGYEN
113.	atgctagaggcacaattttttactgatactggacaacatagagataagaatgaagatgcg gggtgattttttataatcaaaactaatcaacaacttttagttctgtgtgatggtatgggt ggccataaagcaggagaagttgcaagtaaatgtgtacagatgagttgaaatcccggtttt gaagcggaataatcttatagaacaacatcaagctgaaatgggtgctgtaataatataaaa gatataaattttcagtttatcaactatgcacagaataatgcagaataaaggatgggt acaacatggtgtttgtgactgtttttgaaaaatcagttgtgatagcaaatgctcggtgat tctagagcctatggttataatagtcgacaaaattgaacaaattactagtgatcactcattt gttaatcatcttgttttaacgggtcaaattacgcgggaagaagcatttacacatccacaa cgtaaatattattacgaaggtgatgggcacagataaacgtgtgagtcagattgtttatt aagcgattaaatttttatgattattttattataaattcagatggattaactgattatgtt aaagacaatgaaatgaagcgtttgttagtaaaagaaggtacaatagaagatcattggtgat caatgaatgcaattggcattagataaacattcgaagaataaacgttactttcactacgcg gctattgaaggtgataaagta
114.	matdtghrdkndaggyntnvcddmgghkagvaskytdksranhanwrnknknyhyanayk mgmttcvavkvvvanvgdsrayvnsrtdshsvnhvtgtathrntkvmgtdkrvsdkrny dynsdgtdyvkdknrkvgtdhgdmadnhskdnvtaagdkv
115.	atggcacaagaataatcgcgcttcttaagaacatgccaatatcggtactatcggtcac gttgaccatggtaaaacaacattaacagcagcaatcgctactgtattagcaaaaatggt gactcagttgcacaatcatatgacatgattgacaacgctccagaagaaaaagaacgtggt atcacaatcaataacttctcatttgagtaccaaactgacaaacgtcactacgctcaggt gactgcccaggacacgctgactacgttaaaaacatgatcactggtgctgctcaaatggac ggcggtatcttagtagtatctgctgctgacggtccaatgccacaaactcgtgaacacatt cttttatcacgtaacgttggtgtaccagcatttagtagtattcttaacaagttgacatg gttgacgatgaagaattattagaattagtagaaatggaagttcgtgacttattagcgaa tatgacttcccaggtgacgatgtacctgtaacgctgggttcagcattaaaagctttagaa ggcgatgctcaatacgaagaaaaaatcttagaattaatggaagctgtagatacttacatt ccaactccagaacgtgattctgacaaacattcatgatgccagttgaggacgtattctca atcactggtcgtggtactgtgtgacagcgctgtgaaacgtggtcaaatcaaaagttggt gaagaagttgaaatcatcggtttacatgacacatctaaacaactgttacaggtgttgaa atggtccgtaaatatttagactacgtgaagctggtgacacattggtgcattattacgt ggtgtgctcgtgaagacgtacaacgtggtcaagttatagctgctcctggttcaattaca ccacatactgaattcaaaagcagaagtatacgtattatcaaaagacgaaggtggacgtcac actccattcttctcaaacatcgtccacaattctatttccgtactactgacgtaactggt gtgttctacttaccagaaggtactgaaatggttaatgcctggtgataacgttgaaatgaca gtagaattaatcgtccaatcgcgattgaagacggtactcgtttctcaatccgtgaaggt ggacgtactgtaggatcaggcgttgttactgaaatcattaaa
116.	MAKEFDRSKEHANI GTIGHVDHGKTTLTAATVLA RNGDSVAQSYDMIDNAPEEKERG ITINTSHIEYQTDKRHYAHVDCPGHADYVKNMITGA AQMDGGILVVSADGPMPTREHI LLSRNVGVPAVVFLNKMVDDEELLEVMEVRD LSEYDFPGDDVFPVLAGSALKALE GDAQYEEKILELMEAVDTYIPTPERDSKPFMPMPVEDVFSITGRGTATGRVERGQIKVG EVEYIIGLHDTSKTTVGVEMFRKLLDYAEAGDNIGALLRGVAREEIQRGQVLAAPGSIT PHTEFKAEEVVL SKDEGGRHTPFFSNYRPQFYFRTTDTVTGVVHLP EGTETMVM PGDNVEMT VELLAPIAIDEGTRFSIREGGRTVGSVVTE TE



117.	atgactaagagtgcttttagtaacaggtgcatcaagaggaattggacgtagtattgctgta caattagcagaagaaggatataatgttagcagtaaaactatgcaggcagcaagagaaagct gaagcagtagtcgaagaatacaagcctaaaggtgttgaaagttttgagattcaagcaaat gttgccgatgcatgaaatgactaagagtgcttttagtaacaggtgcatcaagaggaattg gacgtagtattgctgtacaatttagcagaagaaggatataatgttagcagtaaaactatgcag gcagcaagaagaagctgaagcagtagtcgaagaatacaagcctaaaggtgttgaaagtt ttgagattcaagcaaatgttgccgatgctgataaggttaaagcaatgattaaagaagtag ttagccaatttgggtcttttagatgttttagtaataatgcaggattactcgcgataatt tatttaactgctatgaagaacaagagtggtgtagtgatttgacacaaacttaaaaggtg tatttaactgctatccaaaagcaacaccacaaatgttaagacaacgtagtggtgctatca tcaatttatcaagtggttgagcagtaggttaacccgggacaagcaaaactatgttgcaa caaaagcagggtgttattggtttaactaaactctgcggcggtgaattagcatctcgtggtg tcactgtaaatgcagttgcacctggttttattgtttctgatatgacagatgctttaagtg atgagcttaagaacaataatgttgactcaaatccggttagcagcttttggtcaagacacag atatgtgtaatacagtagcgttttagcatcagacaagcaaaatatattacaggtcaaa caatccatgtaaatggtggaatgtacatg
118.	MTKSALVTGASRGIGRSIALQLAEEGVNVAVNYAGSKEAEAVVEEIKAKGVESFATQAN VADADEVKAMIKEVVSQFGSLDVLVNNAGITRDNLLMRMKEQEWDDVIDTNLKGVFNCIQ KATPQMLRQSGAIINLSSVVGAVGNPGQANYVATKAGVIGLTKSAARELASRGITVNAV APGFIVSDMTDALSDLEKQMLTQIPLARFGQDIDIANTVAFPLASDKAKYITGQTIHVNG GMVM
119.	atgaaaatttctactaaagggagatatggacttacattgatgatttctcttgctaaaaaa gaggggcaaggatgtatatcattaaagtcaattgtctgaagaaaaaatttgagtgattta tatttagaacagcttgtaggtcctttaagaaatcgccgggttaattcgaagtgtacgggt gctaaaggtggataccaattaagagtgccagcggaagaatactcagcaggggatattata agactgttagaaggtccaattacatttgttgaaagattgaaacagaaccacctgcgcaa aaacaactatggattcgcatgagagatgcagtgagagatgttttagataatacaaatg aaatatttagcgggaatatgtagatacaagtgaaagatttagacggatatactgtttatatt
120.	MLKISTKGRYGLTIMIELAKKHGEGPTSLKSIAQTNNLSEHYLEQLVSLRLNAGLVKSIR GAYGGYVLGSEPDATAGDIIRVLEGPISLLKCNKMRSLPSVSSGFASGML
121.	gtggcatttgaatttagattaccgatatcggggaaggatccacgaaggtgaaattgtg aaatggtttgttaaagctggagatactattgaagaagacgatgttttagctgaggtacaa aacgataaatacagtagtagaaatccccatcaccagtagcttggtactgtagaagaagttag gtagaagaaggtacagtagctgtagttggtgacgttattgttaaaatcgatgcacctgat gcagaagatatgcaatttaaaggtcatgatgatgattcatcatctaaagaagaacctgcg aaagaggaagcgccagcagagcaagcacctgtagctactcaaaactgaagaagtagatgaa aacagaactgttaaagcaatgccttcagtagcgttaaatacgcagcgtgaaaaaggtgttaac attaaagcagtttctggatctgtgtaaaatggtcgattacaaaagaagatgtagatgca tacttaaatggtggtgcaccaacagcttcaaatgaatcagctgcttcagctacaagtga gaagttgctgaaactcctgcagcacctgcagcagtaacattagaaggcgacttcccagaa acaactgaaaaaatccctgctatgctgtagagcaattgcgaagaagcaatggttaactctaag catactgcacctcatgtaacattaatggatgaaattgatgttcaagcattatgggatcac cgtaagaaatttaaagaatacgagctgaacaaggtactaagttacattcttacccttat gttgtaaaagcacttgttctgcattgaaaaataccagcacttaacacttcattcaat gaagaagctggtgaaatcgttcataaacattactggaatatcggtattgcagcagacact gatagaggattatttagtacctgttgttaaacatgctgtagtaagtctattttccaaatt tcagatgaaattaatgaattagctgtttaaagcacgtgatggttaaattaacagccgatgaa atgaaaggtgctacatgcacaatcagtaatatcggttcagctggtggacaatggttcaact ccagttatcaatcaccagaaagtagcaatcttaggaattggccgtattgctcaaaaacct atcgtaaaagatggagaaattgttgacagcaccagtagtagcattatcattaagctttgac cacagacaattgatggtgcaactggccaaaatgcaatgaatcacattaacagtttatta aataatccagaattattattaatggagggg
122.	MAFEFRLPDIGEGIHGEIVKWFVKAGDTIEEDDVLAEVQNDKSVVEIPSPVSGTVEEVM VEEGTVAVVGDVIVKIDAPDAEDMQFKGHHDDSSSKEEPAKEEPAEQAPVATQTEEVDE NRTVKAMPVSRKYAREKGVNIKAVSGSGKNRITKEDVDAYLNGGAPTASNESASAATSE EVAETPAAPAAVTLGDFPETTEKI PAMRRALAKAMVNSKHTAPHVTLMDIIVQALWDH RKKFKEIAAEQGTCLTFLPYVVKALVSALKKYPALNTSFNEEAGEIVHKHYWNI GIAADT DRGLLVPPVVKHADRKSTFQISDEINELAVKARDGKLTADEMKGATCTISNIGSAGGQWFT PVINHPEVAILGIGRIAQKPIVKDGEIVAAPVLALSLSFDHRQIDGATGQAMNHKRL



123. atgctaaacagagaaaaataaaacggcaataacaaggaaaggcatggatccaatcgatta  
aataaattttcgattagaaagtaacacagtggaacagcatcaatttttagtaggtacaaca  
ttaatttttgggtctggggaaaccaagaagcaaggctgcagaaagtactaataaagaattg  
aacgaagcgcacaaacttcagcaagtgtatcaatcaatcgagtgataaagttgatatgcagcaa  
ctaaatcagaagacaatactaaaaatgataatcaaaaagaagtgatcatctcaagggt  
aatgaaacgacttcaaatgggaataaataatagaaaaagaagtgataatctaccact  
ggaaataaagttgaagtttcaactgccaaatcagatgagcaagcttcacaaaaatctacg  
aatgaagatttaaacactaaacaaactataagtaatcaagaagcgttacaacctgatttg  
caagagaataaaatcagtggttaaatgttcaaccaactaatgaggaaaaacaaaaggtagat  
gccaaaactgaatcaactacattaaatgtttaaagtgatgctatcaagagtaagtga  
actctgttgataacaatagtaattcaataatgaaaaatgagagataatcttttgcca  
aaaagtcacagcacctaaacgtttgaatacaagaatgcgtatagcagcgtacagccatca  
tcaacagagggtaaaaatgttaattgatttaacacatcaaatacaacattaaactgtcgtt  
gatgcagataaaaaacaaataaaatcgtaccagcccaagattatttatcattaaaatcaca  
attacagttgatgacaaagttaaatcaggtgattttcacaaataaatactcagataca  
gtacaagttaattggattgaatccggaagataaaaaatattgggtgataataaagatcca  
aataatgggtgaacaattgcgactgcaaaacatgatactgcaaaataatttaattacatat  
acatttcagatttatgttgatcgatttaattctgtacaatgggaatttaatttcaatt  
tatattggatgctgatacaattcctgttagtaaaaaacagtggtgagtttaattgttacgata  
ggtaatactacaacaaaaacaaactgctaacattcaatccagatttatgttgtaaatgag  
aaaaattcaattggatcagcgttcaactgaaacagtttccatgttggaataaagaaaaat  
ccagggtactataacaaacagatttatgtaaatccatcggaatattcttaacaaatgcc  
aaactaaaagttcaagcttaccactcaagttatcttaataatcgggcaaatataataa  
gatgtaacagataaaaaatatacaagttctcaagggttatacattaaaataaggatcac  
gatgtgaataactaaagagcttacagatgtaacaaatcaatctgcagaaaaattacatat  
ggcgacaacaatagcgtgttattgattttggaaatgcagattctgcttatgttgtaattg  
gttaatacaaaattccaatatacaaatagcgaagcccaacacttcttcaaatggctact  
ttatcttcaacaggtaataaaatccgtttctactggcaatgctttaggatttactaaatca  
caagtgccggagctgggtcaagaagtataaaaaattggtaactacgtatgggaagatact  
aataaaaaacgggtgttcaagaattaggagaaaaagcggttggcaatgtaactgttaactgta  
tttgataataatacaaaatcaaaaagtaggagaagcagttactaaagaagatgggtcatac  
ttgatccaaacttacctaattggagattaccgtgtagaattttcaaaacttaccaaaagggt  
tatgaagttaaccccttcaaaacaggtaataacgaagaattagattcaaacggcttatct  
tcagttattacagttaatggcaagataacttatctgcagacttaggtatttacaacact  
aaatcaacacttaggtgactatgtctgggaagatacaaaataaaatggattccaagaccac  
gatgatacaaaataggtatctggcgtaacggtaacattaaaagatgaaaacggtaacgtgtta  
aaaaacagttacaacagacgctgtatggcaaatataaatttactgatttagataatggtaatt  
taataagttgtaatttactacaccagaaggctatacacagcactacagtaacatctggtagc  
gacattgaaaaagactctaattgggttaacaacaacagggtgttataatgggtgctgataac  
atgacattagatagtggtattctacaaaacacaaaaataaatttaggttaattatgtatgg  
gaagatacaaaataggttaagcaggattcaactgaaaaagggtatttcaggcgtaaca  
gttacattgaaaaatgaaaacgggtgaagttttacaacaactaaaaacagataaagatgggt  
aaatatcaatttactggattagaaaaatggaacttataaagttgaattcgaacacccatca  
ggttacacacacacacagtaggttcaggaaactgataaggtatagattcaaatgggtaca  
tcaacaacagggtgtcattaaagataaagataacgatactattgactctggtttctacaaa  
ccgacttacaacttaggtgactatgtatgggaagatacaaaataaaaacgggtgttcaagat  
aaagatgaaaagggtcatttcagggttaacagttacgtttaaagatgaaaacgacaaagtt  
ttaaaaaacagttacaacagatgaaaaatggtaaatatcaattcactgatttaaaacaatgga  
acttataaagttgaattcagagacacccatcaggttatcacccaacttcagtaactcttggga  
aatgatactgaaaaagatttcaattgggtttaacaacaacagggtgtcattaaagatgcagat  
aacatgacattagacagtggtttctataaaacacaaaaatatagttttaggtgattatgtt  
tggtacgacagtaataaagacgggcaacaagattcaactgaaaaagggtatcaaaagattgtt  
aaagttactttattaaatgaaaaaggcgaagtaattggaacaactaaaaacagatgaaaaat  
ggtaaatactgctttgataatttagatagcggtaaatacaagttatttttgaaaagcct  
gctggcttaacacaaaacaggtacaatacaactgaagatgataaagatgcagatgggtggc  
gaagttgacgtaacaattacggatcatgatgtttcacacttgataatggctactacgaa  
gaagaacatcagatagcagactcagattcggacagcagactcagattcagacagagactca  
gactcagatagtgattcagactcggatagcagattcagattcagacagcagattcagattca  
gatagcagattcagattcagacagagactcagattagtgattcagactcagatagcagactca  
gattcagacagcagactcagattcagacagcagactcagactcagatagtgattcagactca  
gatagcagactcagattcagacagcagactcagactcagacagcagactcagactcagatag  
gactcagattcagatagcagactcagattcggacagcagattcagactcagatagcagactca  
gattcagatagcagattcggactcagatagcagactcagattcagatagtgattcagactca  
gatagcagactcagattcagacagcagactcagattcggatagcagactcagattcagacagc  
gactcagactcggatagtgattcagactcagatagcagactcagactcagatagcagattca  
gattcagatagcagactcagactcagacagcagattcagactcagacagcagactcagactca  
gatgcaggttaagcacacacctgttaaccaatgagtactactaaagacctcacaaataaa  
gcaaaagcatttacagaacacaggttaataaataagcgggtcaataacgcacagcttattt  
ggcgattatttcgcagcattaggtatcattattgttattcggtcgtcgtaaaaaacaaaaat  
aaa



126.	MAGQVVQYGRHRKRRNYARISEVLELPLNIEIOTKSYEWFLREGLIEMFRDISPIEDFTG NLSLEFVDYRLGEPKYDLEESKNRDATYAAPLRVKVRLIIKETGEVKEQEVFMGDFPLMT DTGTFTVINGAERVIVSQLVRSPSVYFNEKIDKNGRENYDATIIPNRGAWLEYETDAKDVV YVRIDTRRLPLTVLLRALGFSDDQEIVDLLGDNEYLRNTLEKDGTEQALLEYERL RPGPEPTVENAKSLLYSRFFDPKRYDLASVGRYKTNKKLHLKHLRFLNQKLAEPVNTETG EIVVEGGTVLDRRKIDIMDVLESNANSEVFELHGSVIDEPVEIQSIKVVPNDDEGRIT TVIGNAFDPSEVKCITPADIASMSYFFNLLSGIGYTDIDHLGNRRRLRSVGGELLQNFQR IGLSRMERVVRERMSIQDTESITPQQLINIRPVITASIKEFFGSSQLSQFMDQANPLAELT HKRRLSALGPGGGLTRERAQMEVRDVHSHYGRMCPIETPEGPNIGLINSLSYARVNEFG FIETPYRKVDLDTHTATDQIDYLTAEEDSYVVAQANSKLDENGRFMDDEVVCRFRGNNT VMAKEKMDYMDVSPKQVVSAAATACIPFLENDSDNRALMGANMQRAVPLMNPAPFVGTG MEHWARDSGAATAKHGRGRVEHVESNEILVRLVEENGVEHEGELDRYPLAKFKRSNSG TCYNQRPVAVGDVVEYNEILADGPSMELGEMALGRNVVVGFMWDGYNVEDAVIMSERL VKDDVYTSIHIEEYSRRQRDTKLQPEBITRDI PNVSSEALKNLDRGIVYIGAEVKDGD ILVGKVTPKGVTETAEERLLHAIFGEKAREVRDTSRLRPHGAGGIVLDVKVFNREEGDD TLSHPGNQVLVRVYIVQKRKHVGDKMCGRHGNKGVISKIIVPEEDMPYLPDRGRIDIMLNP LGVPGRMNIQVLEHLGMAAKNLGIHVASPVFDGANDDDVWSTIEAGMARDGKTVLVD GRTEGPFNDRI SVGVMYMLKLAHMVDDKLHARSTGPYSLVTOQPLGKAQFGGQRFGE VWALEAYGAAYTLQEIITYKSDDTVGRVKTVEAIVKGENISRPSVPESFRVLMKELQSLG LDVVMDEQDNEIEMTDVDDDDVVERKVDLQONDAPETQKSY
127.	atgcttagggcattcgccatctctatcgctatttattcagtaataataactggaaggagaaa aaatacatggctagagaattttcattagaaaaaactcgttaatactcggtatcatggctcac attgatgctggtaaaacgactacgactgaacgtattctttattacatggccgtatccac aaaattgggtgaacacacgaagggtgcttcacaaatggactggatggagcaagaacaagac cgtggtattactatcacatctgctgcaacaacagcagcttgggaaggtcaccgtgtaaac attatcgatcacacctggacacgtagacttcactgtagaagtgaacgttcattacgtgta cttgacggagcagttacagtacttgatgcacaatcaggtgtgaaacctcaaaactgaaaca gtttggcgtcaggctacaaacttatggtgttcacgtatcgattttgtaaaaaaaggac aaaattagggtgtaacttcgaatactctgtaagtagacattacatgatcggtttacaagctaac gctgctcaaatccaattaccaattgggtgcggaagacgaattcgaagcaatcattgactta gttgaaatgaaaatgttccaaatatacaaatgatttaggtactgaaattgaagaattgaa attcctgaagaccacttagatagagctgaagaagctcgtgtagcttaatacgaagcagtt gcagaactagcgacgaattaatggaataatctctggtgacgaagaatttcagttctt gaattaaaagaagctatccgcaagctactactaactagaattctaccagctactttgt ggtagcagctttcaaaaacaaagggtgctcaattaatgctgacgctgtaattgattactta ccttcaccactagacgttaaccaattattggtcaccgtgctagcaacctgaagaagaa gtaattcggcaagcagacgattcagctgaattcgtgtagcttcaaaagttagact gaccttatgttgtaaatcaactctcctggtgtagctttaggtgtaaatgacatcgtgt tcatacgttaagaactctactaaaggtaaacgtgaacgtgtaggtcggtttattacaatg cacgctaactcacgtcaagaatacgatactgtatactctggagatatacgtgctgctggtgta ggctttaaagatcacaggtactggtgatactttatggtgtagaaaaatgacattatcttg gaatcaatggaattcccgagcagctattcacttatcagtagagcgaataatctaaagct gaccaagataaaatgactcaagcttttagttaaattacaagaagaagaccacaacttccat gcacacactgacgaagaactggacaagttatcatcggtggttagggtagcttcaactta gacattcttagtagacgctatgaagaagaattcaacgttgaatgtaacgttaggtgctcca atggtttcatatcggtgaaacattcaaatcatctgcacaagttcaaggtaaatctctcgt caatctggtggtgctggtgtaacacggtgatttcacattgaattcacacaaacgaaaca ggcgtaggtttcgaattcgaacacgctatcggtggtggtgtagttctcgtgtaatacatt ccatcagtagaagctggttctaaagatgctatggaataatggtgttttagcaggttatcct ttaatgtgattgtaagctaaattatgatggttcataccatgatgtagcttcatctgaa atggccttcaaaattgctgcatcattagcacttaagaagctgctaaaaaattgtagctct gtaattcttagaaccatgatgaagaactattgaaatgcctgaaggtacatgggtgtag atcatcgtgtagcgttaacatctcgtcgtagcgtggtgtaggttaggaacctcgtggtat gcacaagttgtaattgcttatgtaccacttccagaatggttcggttagcaacatcattta cgttcaaacactcaaggtcgcggtacttacactatgtacttcgactcagctgtaggtgaa ccaaatcaatcgctgaagatattatcaagaaaaataaagggtgaa
128.	MAREFSLEKTRNIGIMAHIDAGKTTTTERILYYTGRIHIGETHEGASQMDWMBQEQDRG ITITSAAATTAWEGRHVNIIIDTPGHVDFTEVERSLRLVDGAVTVLDAQSGVEPQETETVW RQATTYGVPRIVFVNKMDKLGANFEYSVSTLHDLRLOANAAPILQPLGADEFEALIDLVE MKCFYTYNDLGTIEIEIEIPEDHLDRAEERASLIEAVASTDELMEKYLGDDEEISVSEL KEAIRQATTNVEFYPVLCTAFKNGKVQLMLDAVIDYLPSPPLDVKPIIGHRASNEEEVI AKADDSAEFAALAFKVMTDPIYVGLTFFRVYSGTMTSGSYVNKSTGKGRERVGRLLQMH NSRQIDITVYSGDIAAAGLKDGTGTGDLTLCGEKNDIILBSMEFPEPVIHLSVEPKSKADQ DKMTQALVKLQEDPTFHAHTDEETGQVIGGMGELHDLILVDRMKKEFNVNCEVGPMPV SYRETFFKSSAQVQKFSRQSGGRGQYGDVHIEFTPNETGAGFEFENAI VGGVVPREYIPS VEAGLKDAMENGLAGYPLIDVKAKLYDGSYHDVDSSEMAFKIAASLALKEAAKCDPVI LEPMMKVTTIEMPEYMGDIMGDVTSRRGRVDMGPRGNAQVNVAVPLSEMFYATSLRS NTQGRGTYTMYFDHYAEVPKSIAEDIKKNKGE
129.	atgactaaaaagtagcaattattctagcaaacgaatttgaagatatagaattattcaagc cctaagaaggcattagagaatgcaggctttaatactgtagtgattggagatactgcaaat agtgaagtgttggttaaacacgggtgaaaaagttactgtcgatgtaggcattgcagaagct aaaccagaagattatgatgcattataattcctggaggattttcaccagatcatttactgt ggagatacagaaggctgatatggcacatttgcataaactttactaaaaatgatgtacca acatttgccatttgcattgggcccacaaatactaatagatacagacgattttaaaggctcgt acgttaaacagcagattataaatgtacgcaagatttatcaaatgcaggcgacatgtagtt gatgagtcagtagtttagacaacaattatgtaacaagtcgagtagcagacgatttagat gatttaatacggagaaatcggttaacaataacaa
130.	MTKKVAIILANEFEDIEYSSPKEALENAGFNVTVVIGDTANSEVVGKHGKVTVDVGIAEA KPEDYDALILPGGFSPDHLRGDTEGRYGTFAKYFTKNDVPTFAICHGQQLILIDTDLKGR TLTAIVNLVRKDLNAGAHVVDSEVVVDNNIVTSRVPDDLDFFNREIVKQLQ
131.	atggcctaactcatgaacaaatcattgaagcgattaaagaatgtcagtagtagaattaaac gacttagttaaagcaattgaagaagaatttgggtgtaactgcagctgctccagtagcagta gcaggtgcagctggtggcgctgacgctgcagcagaaaaaactgaatttgacgttgagtt acttcagctggttcatctaaatcaaagttgttaaagctgtaaaagcaactggttta ggattaaaagatgctaaagaatttagtagacggagctcctaaagtaatacaagaagcttta cctaaagaagaagctgaaaaacttaagaacaattagaagaagttggagctactgtagaa ttaaaa
132.	MANHEQIIIEAIKEMSLELNDLVKAEIEEFVGTAAAPVAVAGAAGGADAAAEKTEFDVEL TSAGSSKIKVVKAVKEATGLGLKDAKELVDGAPKVIKEALPKEAEKLEQLEEVGATVE LK

133.	gtggaattacaattagcaattgatttattaacaagaagacgcggctgagttagcaaat aaagtaaaagattatgtagatatcgtagaaatcggtacgccaatcatttacaacgaaggt ttaccagcagttaaacatatggcagacaacatttagtaattgtaaaagatttagcagacatg aaaattatggatgcagctgattatgaagttagccaagcaattaaatttggcgcggatgta attacaatactagggtgttcagaaagatgcacatataaagcagctattgaagaagctcat aaaaataaacaattactagttgatgatgattgctgttcaagatttagaaaaacgtgca aaagaactagatgaaatgggtgctgattatattgcagtacacactgggtatgatttaca gcagaagggaatcaccattagaagtttaagaacggttaaactctgttattaaaaattct aaagttgcagtagcaggtggaattaaaccagatacaattaaagattatgctcgtgaaagt cctgatcttgttattgttggggcggaatcgcaaatgcagatgatccagtagaagctgca aaacaattgctgcgctgcaatcgaaggttaag
134.	MELQLAIDLKEDAAELANKVKDYVDIVEIGTPIIYNEGLPAVKHMDNI SNVKVLADM KIMDAADYEVSQAIKFGADVITILGVAEDASIKAAIEEAHKNNKQLLVDMIAVQDLEKRA KELDEMAGADYIAVHTGYDLQAEQSPLESLRTVKSIVKNSKVAAGGIKPDITKIDIVAES PDLVIVGGGIANADDPVEAAKQCRAAIEGK
135.	atgaaaaaattagctacctttattattagccttattacttctagttgctgcattggtgact gggtggttaacaaagcagtgataagtcgaatggcaaatataaagtagtaacgcagcaattca attttatatgatattggtcaaaaaattggtggagacacgctcgatattcatagattgta cctgttggccaagatcctcatgaattatgaagttaaacctaaagattaaaaagtttaact gacgctgacgttattttatacaacggattaaatttagagactggttaacggttgggttgaa aaagccttagaacaggtggttaaatcattaaagataaaaaagttatcgagtagtcaaaa gatgttaaacctatctatttaaacggtgaagaaggcaacaagataaacaagatccacac gcatgggttaagtttagataacggtattaaatcagtaaaaacaattcaacaacatttatc gataacgcacaaaaacataaagcagattatgaaaagcaaggttaacaaatatttctcaa ttggaataattaaataatgacagtaaaagacaaatttaagacattccaaaagaacaacgt gccatgattacaagtgaaaggtgccttcaagtagtcttctcaaaaacaatcaggtattacacca ggttatatttgggaaatttaacactgaaaaacaaggtacacctgaacaaatgagacaagct attgagtttgttaaaaagcacaattaaacacttattagtagaacaaggtgttgataag aaagcaatggaaagtttatctgaagaacgaagaagatatcttgggtgaaggtgacaca gattcaatcggttaagaagcactaaaggtgactcttactacaaatgatgaaatcaaat attgaaactgtacacggaagcatgaaa
136.	MKKLVPLLLALLLVACGTGGKQSSDKSNGKLVVTTNSILYDMAKNVGGDNVDIHSIV PVGQDPHEYEYKPKDIKLLTDADVILYNGLNLETGNGWFEKALEQAGKSLKDKKVIIVSK DVKPIYLYNGEENKDKQDPHAWLSLDNGIKYVKTIQQTPIIDNDKHKADYEKQGNKYIAQ LEKLNDSKDKFNDI PKEQRAMITSEGAIFYFSKQYGITPGYIWEINTEKQGTPEQMRQA IEFVKKHKLHLLVETSVDRKAMESLSEETKKDIFGEVYTD SIGEGTKGDSYVYKMMKSN IETVHGSMK
137.	atgacaactgatattttgaacatttctgaagaacaacttgttgattattctaaagccac aatgaaccttcttggatgacagaattacgtaaaaagcttggaaattacagaaacttta gaaatgcaaaacctgataaaacaaaattaaagaaatgggattttgattcttttaacaa cacgatgtaaaaggtgatgtttatcaatctttatcacaattacctgagtcagtaagagaa attattgacgtagatcattctaaaaacttagtaattcaacataataacagattgctgac acacaagttgatgataatgcacgaaagatggcgttatcggtgaaggtttagcagacgct cttatgaaccatagtgatttagtacaagaactcttatgaaagatgcagtaacagtagat gaacatcggtatcacagcgctacacacggcatttagttaatgggtggcgtatttggttatgtt cctaaaaattgtagttgtagaacatccagtcacaatcagttgtgtgcacgacgacgaaaaat gcaagcttttataacatggttatcatcggttactgaagaagcgcgaagtcacatatgtt gaaaattacttatcaaatgcatctggtgaaggaaatcaattaaatattatttctgaagtg attgctggtgcaaatcaaatatcacatatggctcagtggaactataggataaaggcttt acaggtcatatcattcgacgtgggtattactgaagcggatgcctcaattaatgggcacta ggtttaaatgaatgaggttagccaaattattgataatacaacaaatttatttgggtgatcgt tcaacaagttcacttaaatcagtagttgttaggtacaggcgaacaaaaattaatcttaaca tctaaatcggtacaatattggttaagaacagatgggttatatccttaaacatgggtgtatg aaagaacatgcatcgctctgtatttaaggtatcggtacattaaagcaggtgggaactaaa tcaattgctaatacaggaatcaggtgtattaatgttatctgaacatgctcgtggtagcgcg aatcctattttatttaattgtagaagatgtagtacaagctgggtcatgctgcatcagtaggt cgtgttgatccagatcaactttactatttaagtgcgtggtatttctcaagagaagcgcg gaacgctctgttatcatggtttcttagatccagtagtagtgaattacattatcgaaagac gttaaacgtcaattgagagaagtaattgaacgcaaggtttctaaa
138.	MTDTILNISEEQLVDYSKAHNEPSWMTLELRKKALKLTETLEMPKPKDKLKRKWFDSFKQ HDVKGDVYQSLSQLPESVREI IDVDHSKNLVIQHNNITAYTQVDDNASKDGVIVEGLADA LMNHSDLVQKQYFMKDAVTVDEHRI TALHTALVNGGVFVYVPKNVVVEHPVQYVVLHDDEN ASFYNHVIIVTEESAETVYVENYLSNASGEGNQLNI I SEVIAGANSNITYGSVDYMDKGF TGHIIIRRGITEADASINWALGLMNEGSQI IDNTNLFGDRSTSSLSKVVGVTGEQKINLT SKIVQYKGETDGYILKHGMKEHASSVFNGIGYIKHGGTKSIANQESRVLMLEHARGDA NPILLIDEDDVQAGHAASVGRVDPDQLYILMSRGISQREARLVIHGFDPVVRLEPIED VKRQLREVIERKVSX

139.	<p>gtgggtcaagaatatgatgtaatcggttataggtgctgggacatgcagggtgtagaagcaggt  ttagcatctgcaagacgtgggtgctaaaacattaatgctaaacataaatttagataatatt  gcatttatgcatgtaacccatctgttaggtggaccagctaaagggtatcggtgttcgtgaa  attgatgcttttaggtggacaaatggcaaaaacattcgataaaacacacattcaaatgaga  atgttaataacaggtaaaggacctgctgtaagagcactaagagcgcaagcagataaagta  ctttatcaacaagaatgaaacgcgtgattgaagatgaagaaaatttgcataatgcaa  ggtaggttagacgaacttattatagaagataatgaagttaaagggtgacgtacaaatatt  ggtacagagattttatctaaagcagtaattattacaacgggaacatttttacgtggtgaa  atcatttttaggtaatatgaagtattcaagtggaccaaatacccaattaccatcaatcaca  ttatcagacaatttaagagaacttggttttgatattgttcgttttaaacagggtacacca  ccgctgttaaatcaaaaacaaatgactattcgaagactgaaatacaaccagggtgacgat  gtaggctgctgattcagctttgaaacaacagaaatataattagatcaattgcatgttgg  ctaacgtataactaatgctgaaacacacaaagttatcgatgataatttacatctatctgca  atgtattcagggatgattaaaggaacccgggcccagttattgcccctcaattgaagataaa  ttgttcgatttaattgataagccgcgacatcaactttcttagagcctgaagggtcgtaaat  acaaatgaagtataatgcaaggattgtctacaagtcttctgaacatgtgcaacgtcaa  atgttagagacgataccagggtcttgaagaaagcagatatgatgctgcccgtacgcaatt  gaatatgatgctgattgtgccaacgcagttatggcctacactgaaacgaaaaatgattaaa  aaccttataactgcaggtcaaatatggttacatctggttatgaagaagcagcaggacaa  ggattgatgctgaggtattacgctgcaggttaaaggtttaaacaacaggcgaagataatta  agtcggttcagatgcatataattggtgtcttaactcgatgacttgaactaaagggtactaat  gaaccttactggtttactaacatcacgtgcagaatattcggtttgttactacgtcatgataat  gctgattttgagattgacggatattgggatattgaacttggtatgatttctgaagaaagatat  gcacgcttttaataagaaaacgtcagcaaatgtatgcggaatttaacggtttatcagatatt  cgtattaaacaaacgaacatcgaacgagattattgaacaacatggtggttctcgctta  aaagattggtatttttagctatcgatttattacgcagacctgaaatgacttacgataaatt  ttagaacttttagaagaagaacatcaattgaatgcagatgttgaagaacaagtagaata  caaacaaaatgaaggttatatcaataaatacactacaacaagttgagaaggttaagcgt  atgggaagagaagaaaattccagaagacttagattatagtaagattgatagtttggcgact  gaagcgcgagaaaaattatcagaagtaaaacctttaaatattgcacaagcttctagaata  tcaggggttaaatccagcagacatatctattattgatttacttagaacaaggtaaacatc  caaagggtgagtgac</p>
140.	<p>MVQEYDVIVIGAGHAGVEAGLASARRGAKTLMLTINLDNIAFMPNCPNSVGGPAKGIVVRE  IDALGGQMAKTIIDKTHIQMRMLNTGKGPVAVRALRAQADKVLVQQEMKRVIEDEENLHIMQ  GMVDELIIEDNEVKGVRTNIGTEYLSKAVLIITGTFLRGEIILGNMKYSSGPNHQLPSIT  LSDNLRRLGFDIVRFKGTTPPRVNSKTIIDYKTEIQPGDDVGRFASFETFEYILDQLPCW  LTYTNAETHKVIDDNLHLSAMYSGMIKGTGPRYCPSTIEDKFVRFNKPRHQLFLEPEGRN  TNEVYVQGLSTSLPEHVQRQMLETIIPGLEKADMMRAGYAIEYDAIVPTQLWPTLETFRMIK  NLYTAGQINGTSGYEEAAGQGLMAGINAAGKVLNTGEKILSRSDAYIGVLIDDLVTGKTN  EPYRLLTSAEYRLLRLHDNADLRLTDMGYELGMISEERYARFNEKRQQIDAETKRLSDI  RIKPNETHQAIIEOHGGSRLKDGILALDILLRRPEMTYDIILELLEEHQLNADVEEQVEI  QTKYEGYINKSLQOVKEVKRMEKKIPEDLDYSKIDSLATEAREKLESEVKPLNIAQASRI  SGVNPADISILLIYLEQGLQVRVSD</p>
141.	<p>LMNNEBVFILYLDNAAXTKAFEEVLDTYLKVNQSMYNNPNSPHKAGLQANQLLQQAAT  QINAMINSKNTYDVFTSGATESNNLALKGILAYRKFDTAKEIITSVLEHPSVLEVVRYLE  AHEGFKVKYVVDKDGSLNLEHFKELMSDKVGLVTCMYVNNVIGQIQPIQMAKVIKNYP  KAHFHVDVAVQAFGKISMDLNNIDSISLSGHKFNGLGKQGVLLVNHIQNVEPTVHGGGQY  GVRSGTVNLPNDIAMVKAMKIANENFEALNAFVTELNNVDRQFLNKYHGVYINSSTSGSP  FVLNISFPGVKGEVLVNAFSKYDIMISTTSACSSKRNLNEVLAAAGLSKDSIEGSRILS  FGATTTKEDLARFKEIFIITYEIEKELLK</p>
142.	<p>MNKQKKEFKSFYSIRKSSLGVAISVAISTLLLLMSNGEAQAAAETGGTNTTEAQPKTEAVA  SPTTTSKAPETKPVANAVSVSNKEVEAPTSETKEAKEVKEVKAPKETKEVKPAKATNN  TYPILNQELREAIKNPAIKDKDHSAPNSRPIDFEMKKKDGTTQFYHYASSVKPARVIFTD  SKPEIELGLQSGQFWKKEVYEGDKKLPIKLVSYDTVKDYAIRFSVSNGTAKVKIVSST  HFNNKEEKYDYTLMEFAQPIYNSADKFKTEEDYKAELLLAPYKAKTLERQVVELNKIQD  KLPEKLKAEYKKKLEDTKKALDEQVKSAITEFQNVQPTNEKMTDLQDTKYVVYESVENNE  SMDTFVHKPIKTGMLNGKXYMMEITNDYWKDFMVEGQVRVTISKDAKNNTRTIIFPY  VEGKTLYDAIVKHVKTIIDYDQYHVRIVDKEAFTKANTDKSNKKEQQDNSAKKEATPAT  PSKPTPSPVEKESQKQDSQKDDNKQLPSVEKENDASSESQKGVTLATKPTKGEVESSTT  PTKVVSTTQNVAKPTTGSSTTKDVVQTSGSSEAKDSAPLQKANIKHTNDGHTQSQNNK  NTQENKAKSLPQTGEESNKDMTLPMLALLALSSIVAFVLPKRKN</p>

143. atgagctgggtttgataaattattcggcggaagataatgattcfaatgatgacttgattcat  
agaaagaaaaaagacgtcaagaatcacaaaatatagataacgatcatgactcattactg  
cctcaaaaataatgatattttagtctgctcggaggggaaaaatccggttttccctatgagcgt  
gcttatgaaaaatgaaaatgttgaacaatctgcagatactatttcagatgaaaaagaacaa  
taccatcgagactatcgcaaaacaaagccagattctcgttcacaaaaacgacatcgccgt  
agaagaaatcaaaacaaactgaagaacaaaattatagtgaaacacgtgggaattctaaaaa  
tcacagcaaggtataaaatataaagatcattcacattaccatagcaataagccaggtaca  
tatgtttctgcaattaatggtattgagaaggaacgcacaaagccaaaaacacataatg  
tattcttaataatacaaatcatcgtgctaaagattcaactccagattatcacaaagaaagt  
ttcaagacttcagaggtaccgtcagctatttttggcacaatgaaacctaaaaagttagaa  
aatggtcgtatccctgtaagtaaaccttcagaaaaagttagtcagataaaaaaaatat  
gataaaatattgtagtcaagacgcaaacgtctcaaaataaaacaattagaacaagaaaaacaa  
aatgatagtggttgcacaaaggaactgcattcaaatcatctgatgaaaatgtatcatca  
acaacaaaatcaatgcctaattattcaaaagttagataactatcaaaattgaaaatatt  
tatgcttcacaaattgttgaagaatttagacgtgaacgagaacgttaaagtcttcaaaag  
cgtcatttaaaaaagcgttgcacaaaaagcgtgaagaacataaaaaacgaagagcaagat  
gcgaataacagtgcaattgatgaaatgtatgctaaacaagcgaacgtatgttgggtg  
agttcatataatgatgatgacttaacagataatagtcacagatgcttagtcagcttcat  
acaaatggcatagagaatgaaactgtatcaaatgatgaaaataaaacagcgtcaataca  
aatgaagacactaatgacactcatgtagatgaaagtcacataatgatgggaaggttagt  
ttgaaatcaagtatcgacaacaaaacaattgtcagatgatgaagttacggtttcgaatgt  
acgtctcaacatcaatcagcactacaacataacgttgaaatgaatgataaagatgaacta  
aaaaatcaatccagattaatgtctgatcagaagaagatggagcaacgaataaagaagaa  
tattcaggaagtcaaatcgatgatgcgaattttatgaattaaatgatacagaagtagat  
gaggatactacttcaaatatcgaagataatacacaatagaacgcgtctgaaatgcatgta  
gacgctcctaaaaacgcaaggtacgcagtaactgaattcgaagtaaatatcatcgaataa  
acggttgataatgaaattgaattagcacgcgtcataaaaaagatgaccaaacaactta  
agtgtaacactcattgaaaacgaatgatgtgaatgataatcatgttggggaagattcaagc  
atgaatgaaaatagaaaaagaataacgcagaaattacagaaaaatgtgcaaaacgaagcagc  
gaaagtgaacaaaaatgtcgaagagaaaaactattgaaaacgttaaatccaaagaacagact  
gaaaaggtttcaactttaagtaaaagaccatttaattgtgtcatgacgccaatctgataaa  
aagcgtatgatggatcgttaaaagcattcaaaagtcaattgtgctgaattaaagcctgta  
caaagttaagcaagctgtgagtgaaagaatgcctgagagtcagccacacacatcaaga  
tctgatccacaagagtcacaaatcaaatgcataaaaaacaaataatgatgacatacaaat  
cttgagaacaaatcaactatttggtcatgcagaaacagaaaaatgatatcaaaatgcacaa  
caaatctcagagcagaaaccttctgttgattcaactcaaacggaatatttgaagaaggt  
caagatgataatcaattggaataatgagcaagttgatcaatcaactcgtctcagtttca  
gaagttaagcgacataactgaagaaagcgaagaacacacatccaaacaatactagtga  
caacaagataatgatgatcaacaaaaagatttacagtcacattttcaaataaaaatgaa  
gatagcgttaataaaaaatagacctcggagcaacaaacaagatgttgcaacaaatcaagct  
ttacaaacatctaaagcgtatgattcgttaagggcccaaatattaaattgccaagtgttca  
ttactagaagaaccacaagttattgagtcggacgaggtggtattacagataaaagaaga  
gaactgaatgacgcattattttactttaattgtacctgcagaagtacaagatgtaactgaa  
ggctcaaggtgttacaagatttgaattatcagttgaaaaaggtgttaaggttcaagaatt  
acggcattacaagatgacattaaaatggcattggcagcgaagatattcgtatagaagcg  
cctattccaggaactagtcgtgttggtattgaagttccgaacaaaaatccaacgacagtc  
aacttacggttctatttgaatctccaagttttaaaaatgctgaatctaaattacagtt  
gcgatggggtatagaatttaataatgaaccattacttatggatattgctaaaaacgccaac  
gcactaatgtcaggtgcaactggatcagggaaatcagtttgtatcaatagttttgatg  
tctttactatataaaaaatcatcctgaggaattaaagattattacttatcgatccaaaaatg  
gttgaattagctccttataatgggttgccacatttagttgcaccggttaattacagatgtc  
aaagcagctacacagagtttaaaaatgggctgagaagaatggaacgacgttataagttta  
tttgcacattaccatgtacgttaataaaccagcatttaacaaaaaagcaccatagatgaa  
agaatgcaaaaaatgtcattgttaattgatgagttggctgatttaattgatgaggtccg  
caagaagttgaacagctcatttctagaattgtcaaaaagcgaagcagatgtggattcat  
atggttagtagctacgcaagaccatctgtcaatgtaattacaggtttaattaaagccaac  
atacacaagaatgtcatttattggtatcatcaagttagattcgagaacgatattagac  
agtggtggagcagaacgcttgttaggatatggcgatattgttatcttggtagcgttatg  
aataaaccgatttagagttcaaggtacatttgtttctgatgacgaattgtatgattgtt  
gattttatcaacaacaaagagaaccggaactatctattgaagaaaaagaattgttgaaa  
aaaacacaaacacaaatcaagaatgaattatttgatgatgtttgtgcatttatggtaaat  
gaaggacataattcaacatcatttaacaaagacatttccaaattggctataatagagca  
gcaagaattatcgatcaatttagagcaactcgttattgtttcgagtgctaattggttcaaaa  
ccaagggatgtttatgttacggaagcagatttaataaagaa

144. atgcctaaacgtaatatgatatcaaaacaatttttagtaaatagggtctgggccaattatcata  
gggtcaagcagctgaattttgattatgctggaacacagcatgtctagctttaaaagaagag  
ggatatcaggtattcttctgtaaatccaaatccagcgacaatcatgactgataaggaatt  
gcggtataaagtatatatcgaaacggttaactcatgattttatagcgcgaattatcagctaaa  
gagcaacctgacgctttacttccaacttttaggtgggtcaaacagggtttaaactggcgatt  
caactacacgaagtggtgtgcttcaagataataacgtccaattttaggaactgagcta  
acatcaattcaacaagcagaagacggtgaattgttagaacattaatgaatgattttaaac  
gttctctgtaccagagagtgacatttgaataacagtagagcaagcctttaaattcaaagag  
caagtgggataaccgctaatgttagacggcatttacgatgggtgggtaccggaggcggt  
atttctcataatgatgaagaattacatgaaatcgctctcaaatgggtcttcatatagtcca  
gcaacgcgaattgtttatagaaaaatctatcgaggttttaaagaaatcgaatacgaagta  
atgctgtgataaaaacgataatgccatcggtgtatgttaacatggaaaaatattgtaccagtt  
gggtattcatcagggcaggtcaattgtgtgtggctcttagtcaaacattatcagatgttgag  
tatcaaatgtttacgtgatgtttcattaaaagtatttcgagctttagggtatcgaaggtgggt  
tgttaattgttcaattagcattagatccccattcattcgattattatattatagaagtaaat  
ccgctgttatcaggttcatcagcgttagcttcaaaagcaacaggatattcctattgcaaaa  
ttagctgtgtaaaatcgcggttggtctaacatttagatgaattgttaaatccaattacagga  
acatcttatgcagcgtttgaaccaacttttagactatgtgatttcaaaaataccaagattt  
ccttttgataaaatttgaaaaaggagaacgagagcttggcacacaaatgaaggaacaggt  
gaagtattggccattgggtcgaacttacgaagaatcatgtttaaagcaatttcgatcactt  
atgacgggtgtgcatcacttaggattaccaaatgggtgaagcttcgatcttgattatatt  
aaagaacgtatttcacaccaagatgatgaacgattatttttcatcgcgcaagcaattaga  
agaggcacaacattagaagaattcataatagactcagattgattacttcttcttacac  
aagttccaaaacattattgtatattgagcatcaattaaaagagcatcaaggtgatttagaa  
tatcttaaatatgcaaaagattatggatttttagtgataaaaacaatagcgatcgctttaat  
atgacgggaagaaggtatatcaattgcgtatggaaaatgatattaaacctggttacaag  
atgggttgatacttgcgcagctgaatttgaattctcaacaccatattattatgggtacatac  
gaaactgaaaatgaatccatagttactgacaaagaaaaatcttagtattaggctctgga  
ccaattcgaatcgcccaaggtgtagaatttgactatgcgacagttcatgccgtttgggca  
attcaaaaagcaggggtacgaagcgataattgtgaataacaatccagaacaggtttcaaca  
gactcttcaatttctgacaaattatactttgaacctttaactgaagaagatgtgatgaat  
atcatttaatttagaaaaacctaagggtgtcgttgtacaatttggaggacaaacagcgatt  
aattagcgagacaaattggctaaaacatgggtgttaaaatacttgggtacttactagaaaat  
ctaaatcggtgctgaagatagaaaagaatttgaagcactattaaagaaaaatcaacgtgcca  
cagccacaagggaaaaacagctacatcacctgaggaagcatttagcgaatgctgcagaaatc  
ggatatccgggtttagtaagaccttcttatgtattagggtgggtcgcgcaatggaaattgta  
gacaatgacaaagagtttagaaaactatatgacccagggtgttaaagcgagtcgggaacat  
ccggtactagtcgatagatatttaactggtaagaaattgaagttgatgcgatttgtgat  
ggagaacgggtcattattccaggaatcatggaacatattgaacgtgctggtgtgcatagt  
ggtgactcaatcgctgtatatccaccacaaactttgacagaagacgagttagcaacactt  
gaggactatactataaaaattagctaaagggtttaaacatcattgggttaatacaacattcaa  
ttcgttatagctcacgatgggtgtgtatgttttagaagtaaatccagttcttagtagaacg  
gtaccattcttaagtaaaattactgatattccaatggcacaattagctatgcgagcaatc  
attggggaaaaactaacagatatgggttatcaagaaggggttcaaccaatgctgaggggt  
gtctttgtgaaagcaccagttattagttttaataaattgaaaaatgttgatattacttta  
ggacctgaaatgaagtcaacaggtgaagtgtatggggaagatactacattagaaaaggcg  
ttattcaagggttaacaggttagtggcgttgaagttaaagatcacggtacagttatgaatg  
ggctataaaaatttagcaacgtctggaacagcttaataatttagctgagtagacatacct  
gcagaagtagtaggcaaaattgggtggcgaatgatttatttaacacgtattcaaaatgggt  
gatgttcaaatcggtataaaatacaatgactaaagggtaaagaagtagaaagggatgggttc  
caaattagacgtactacagttgaaaatgggtattccatgtttgacattttagatcacgct  
aatgccttaacgaatgttaattgaaggtatgacatttacaatgcgtcaaatg

145.	<p>atgattaacagggataataaaaaaggcaataacaaaaaagggtatgatttcaaatcgctta  aacaatttttcgattagaaagtatactgtaggaaactgcacgatttttagtaggtacgaca  ttgatttttggcttagggaaaccaagaagctaaagctgctgaaaacactagtacagaaaat  gcaaaacaaagatgtagcaacgactagtataaagaagtagtgcggaactgaaaat  aattcgacacagaaaaataattcaacaaatccaattagaagaagaacaaatactgattca  caaccagaagctaaaaaagaatcaacttcatcaagtactcaaaaacagcaaaaatacgtt  acagctacaactgaaactaaagcctcaaaacattgaaaaagaataattgtaaaccttcaact  gataaaactgcgacagagatacatctgttatttttagaagagaagaagcaccaaaataat  acaaaataacgatgtaactacaaaaccatctacaagtgaacctctacaagtgaattcaa  acaaaaccactacacctcaagaatctacaaatattgaaaattcacaaccgcaaccaacg  ccttcaaaagtagacaatcaagttacagatgcaactaatccaaaagaaccagtaaatgtg  tcaaaaagaagaacttaaaaaaaatcctgagaatataaagaattgggttaaaaatgtagc  aatacagatcattcaactaaaccagttgctacagctcccaacagttgtgaccaaaccgt  gtaaacgcaaaaatgcgctttgaggtgcacacacagcagcagttgcttcaaaacatgta  aatgatttaattaaagtgacgaagcaaacatcaaaagttggcgatggtaagataatgtg  gcagcagcgatgacggttaagataattgaatatgatacagagtttacaattgacaataaa  gtcaaaaaaggcgatacaatgacgatttaattatgataagaattgtaattccttcggattta  acagataaaaaatgatcctatcgatattactgatccatcaggagaggtcattgtcgaagga  acatttggataaaagcaactaaagcaaatcacatatacatttacagactatgtagataaatat  gaagataaaaaacacgcttaactctatattcgatattgataaaaaaacagttccaat  gagacaagtttgatttaacatttgcacagcaggttaagaagaacagcaaaaatgtcact  gttgattatcaagatccaatgggtcattggtgattcaaacattcaatctatctttacaaaa  ttagatgaagataagcaaacatttgaacaacaaatattgttaaccattgaaaaatca  gcaaccaacactaaagttagatagctggtagtcaagtagatgatttggaataattaaa  ctaggaattggtagcaccattattgaccaaatacagaataaagggtttataaagtttaac  ctgatcaacaattgctcctcaagtaatagaatctatgatttttagtcaatcgaagatgta  acaagtcaatttgataataaaaaatcatttagtaataatgtagcaacattggattttgggt  gatatttaattcagccttatattatcaaaagttgttagtaataatcacactacatcagatggc  gaactagatttgcacaggtactagtagtagaacaactgataaatatgggtatttataat  tatgcaggtatttcaactctcatgtaacttctaatagacactggcggtggcgacggtact  gttaaacctggaagaagaagttatacaaaaatgggtgactatgtatgggaagcgttgataaa  gacggtgttcaaggtacagattcaaaaagaaaaacaaatggcaaacgttttagttacatta  acttaccggagcgttactacaaaatcagtaagaacagatgctaattgggtcattatgaattc  gggtgttgaagacgggagaacattatcagtttaattcgaaacgcaactggatattctt  ccaacaaaagtaaatggaacaaactgatgggtgaagaagactcaaatgggttagttcgggtact  gttaaaatttaattggtaagatgataatgtcttttagatactgggtttttacaagaacctaaa  tacaacttaggtgactatgtatgggaagatactataaagatgggtatccaagatgcgaat  gagccagggaatcaagatgttaaggttacattaaaagatagtagtggaaaagttattgggt  acaactactactgatgcctcgggtaaaataaaatttacagatttagataatggtaactat  acagtagaatttgaacacacagcaggttacacgccaacgggttaaaaatactacagctgat  tcaaaagatttctaattgggttaacaacaacaggtgtcattaaagatgcagataaatatgaca  ttagacaggggtttctataaaacaccaaataacagtttaggtgattatgtttggtacgac  agtaataaagacggcaacaaagattcaactgaaaaggtatcaagatgtgacaggttaca  ctgcaaaaacgaaaaaggcggaagtaattggaacaaactaaaacagatgaaaatggtaaatat  cgtttcgataaatttagatagcggtaataacaaagttatttttgaagaagcctgtggttga  acacaaacaggttacaatacaactgaagatgataaagatgcagatgggtggcgaagttgac  gtacaacattacagatcatgatgatttcacacttgataacggatacttcgaagaagataca  tcagacagcgattcagactcagatagtgactcagacagcgactcagactcagacagcgac  tcagactcagacagtgattcagattcagacagcgactcagattcagatagcgactcagat  tcggacagcgattcagactcagatagcgactcagattcagatagcgattcagactcagac  agcgactcagattcagatagcgattcggactcagacagcgattcagactcagatagcgac  tcagactcagacagcgactcagattcagatagcgattcggactcagatagcgactcagat  tcagacagcgattcagactcagatagcgactcagattcagacagcgattcagactcagat  agcgactcagactcagacagtgattcagattcagacagcgactcagactcagatagcgac  tcagattcggacagcgactcagactcagatagcgactcagactcagacagtgattcagac  agcgattcagactcggatgcaggaacatacacactgttaaaccaatlgatctactaaa  gaccatcacaaataaagcaaaagcattaccagaacacaggtagtgaaaataacgggtcaaat  aacgcaacgttatttgggtgattatttgcagcattaggttcatttattgttatcgggtcgt  cgcaaaaacaaaaaaa</p>
146.	<p>atgactcatttttagagacatttgagatgtcaatagatcaccaggaagatgggttagtt  gttatttctatgcctgttactgataaagtataaacacacatttggatatttacatgggtggg  gcttcgattgcttttaggtgaacagcattgttcattaggatctgctaatttaattgataca  accaaaatttattccattaggttttagagatgaatgctaaccatattcattctgctaaagat  ggtcgtgttactgcgacagctgaaattattcatcgaggttaagtcgacacatgtatgggat  ataaaaaataagaatgacaaagaacaatttaattacagttatgcggtggtacagttgtatt  aaacctttaaaa</p>
147.	<p>atggagcatacaactatgaaaataacaacgatttgctaaaaaagtttagcactaggcctt  ttaacaacaggtgtaatcacacgacaacgcgaagcagcaaacgcgacaacacattctcc  actaaagtgggaagcaccacaatcaacaccgcccctcaactaaaatagaagcaccgcaatca  aaaccaaaacgcgacaacacccctcaactaaagtgaagcaccgcgaacaaacagcaaat  gcgacaacacccgcttcaactaaagtgaacacacccctccatcaacaaacacgcgcaacca  atgcaatctactaaaatcagacacaccacaatcgccaacacaaaacagtaaccaacagaa  ataaatcctaaaatttaagatttaagagcgtattatagcaaaacaaagtttagaattttaa  aatgagattgggtatttttaaaaaatggacgacaataagatttatgaatgtgtccca  gattatttcatatataaaattgcttttagttggtaagatgataaaaaatattggtgaagga  gtacatagggaatgctgattttgtcgttttagaagaataaattacaattcggaaaaa  tatctcgtcgggttatcacaaagagtaattgtaaaaaagttgatcacaagcagggagta  agaattctaaaggaagataataaaggtacaatctctcatgattgtttcagaattcaagatt  actaaagaacagatttcttgaagaactttgatttttaatttgagaacaaacttattgaa  aaaaataatctgtacggtaacgttgggtcaggtaaaattgttattaaaatgaaaacgggt  ggaaagtacagtttgaattgcacaaaaaattacaagaaatcgatggcagatgtcatt  aatagtgacaaaattaaaaacatcgaagtgaatttgaaa</p>



148.	<p>atgaaaaagcaataatttcgctagggcgcattagcagttgcatctagcttatttacatgg  gataacaaagcagatgcgatagtaacaaaggattatagtggaataacacaggttaagtct  gggagtaaaaaatgggacattaatagatagcagatatttaaatcagctctatatttttg  gaagactataaatttatgctataggtatctaataataatgaatagagataaattt  tataaagaagctaaagataggtgtgttgaaaaggattaaaggaagatcaatatcttttg  gagagaagaagaatctcaatatgaagattataaacaatgggtatgcaaatataaaaaagaa  aatcctcgtacagatttataaaatggctaatcttataaataaatttagaagaacttctg  atgaagaatacaatgaactacaggtatgattaaagagagcagctggatgattttcacaga  gaagttaaagataatgaagataagaattcagacttgaaaacttttaatgcagcagaagaa  gataaagcaactaagggaagtatacagatctcgtatctgaaattgatacattagttgatca  cattatgggtgataaggattatggggagcagcgaaagagttacgagcaaaactggactta  atccttggagatacagacaatccacataaaattacaaatgaacgtattaaaaaagaatg  attgatgacttaaatcaattattgatgatttctttatggaaactaaacaaaatagaccg  aaatctataacgaaataaattcctacaacacataactataaaacaatagtgataataaa  cctaatttttgataaatttagttgaagaacgaaaaagcagttaaagaagcagatgattct  tggaagaaagaaaactgtcaaaaaatcgggagaactgaacaaaatcgccagtagtaaaa  gaagagaagaaggttgaagaacctcaagcactaaagtgtataaccaacagaggttaaa  actacgggtggtaaaagctgaagaacacacacacacaggtgcacaaccatttagttaaaat  ccacagggcacaattacaggtgaaattgttaaagggtccggaattccaacagtaggaaat  aaaacgggtacaaggtgaaatcggtcaaggtcccgatttttcaacaatggaacaaagcggc  ccatcattaaagcaataattatacaaacccacgggttaacgaaccctattttagaaggtctt  gaaggtagctcatctaaacttgaataaaaccacaaaggtactgaatcaacgttaaaaggt  actcaaggagaatcaagtgatattgaagttaaacctcaagcaactgaacacacagaagct  tctcaatattgggtccgagaccgcaatttaacaaaacacctaaatattgtaaatatagagat  gctggtacaggtatccgtgaatatacagatggaacatttggataggaagcgagaccaaga  tcaataaagccatcagaacaaatgcataataacgtaacacacatgcaaatgggtcaagta  tcatcaggagctcgtccgacatacaagaagcgaagcgaacgaatgcatacaatgtaaca  acacatgcaaacggccaggtatcatcaggagctcgtccgacacaaaacagccaagcaaa  acaaacgcatataacgttaacacacatggaacggccaggtatcatatggcgctcgcca  acacaaaaacagccaagcaaaacaaatgcatacaacgtaacacacatgcaaacgggtcaa  gtgctacaggaagctcgcggacatacaagaagcgaagtaaaaacaaatgcatacaatgta  acaacacatgcagatgggtactcgcacatattgggcttagagtaacaaaa</p>
149.	<p>atgaaaaaattagcaacagtaggttctttaaattgtaacagcacttttagtatttcaagt  atgctctttcaaaatgcgcatgcccacacaaacttcaatgaattgtgcaataaacaagc  caaaatgtacaaatcatcgtccttattggcggagtagtaccacaaggaatgacgcaagca  caatatactgaattagagaaagctttaccccaattaaagcgtggcagtaattgcaagac  tataatatgaaattgtatgatgagcagcaaaatattgctgataatacaatgtgataatt  acaactaatgtaggggtatttaaacacacatgctgttagagatatgaatggccatgcgtta  cctttacaaaaagatggcaatttttatcaaacgaatgtagatgcaaatgggttaatcat  ggtggttagtgaattgggtgcaaaataaaacaggtcatatgagtcaacaaagccatgaat  cagaacacacacatgaaccaacagccacacatgcaacaaggtcatatgcaatcatcaaac  catcaaatgatgagtcacaaagcaaatatgcattcatcaaatcatcaaatgaacaaagt  aacaacaaagttttaccagctgctgggtgaaggtatgacatcaagttattctactgcaagt  attgcccactactatttagtatctgggttattcttagcatttagacgagcttcaacaaat  aaa</p>
150.	<p>gtgcttaggagtgatttttatatgtcttattccattgttagagtttcaaaagttaaactc  ggaacaaatacaacgggcatacaaaaacatgttcaaaagagaaaaataaattatgaaaat  gaagatatagaccatagtaaaacttacttaaatattgatttggtaaatgttaataaacag  aattttaataaacttgattgatgaaaaaatcgaacagaattatacaggcaaaagaaaaatt  agaacagagcgcgattaaacacattgatgggtttaaatacatcagacaatgatttctttgat  aatcaaacgccagaagatacaaaagcagtttttgaatatgctaaagagtttttagaaca  gaatcaggttaaagataatttattatgatcaacagttcacatggacgaaaaaacaccacat  atgcattatggcggttgttccaataactgatgatgggtcgtttaagtgctaaagaagttgta  ggtaataaaaaagctttaaagcgtttaaagatagatttaagagcatgtttaaacaacga  ggatattgatttagaacgtgggcaatcaagacaaagtaacaaatgctaaacatgagcaaaat  agtcagtataaaacaaaaacagaatatacaagcaagaatataaacgtgagagccaaaaa  acagaccataaaagcaaaagacgataaattatgcaagagtagcaaaaaatcgttaaat  acgcttaaaaaagcctataaatgttccgtatgagcaagaactgaaaaagtaggtgggtta  tttagcaaaagaaatacaagaactggaaatgttgaataagccaaaaagatttcaatgaa  tttcagaacagataaaagctgctcaagatatttcggaagattacgagtatataaagct  ggtagagccttagatgataaagataaaggaatacagagagaagatgatttataaataaa  cgagttgagcgtattgaaaacgcagacgataatttaaccaactttacgaaaaatgcaaa  ccacttaaaagagaatatagaataagcgttaaagcttttaaaaatcctactaaaagagtta  gaacgagtttttaggaagaataacctttgcggaagaggttaataagttacagaagatgaa  cctatggca</p>
151.	<p>MSWFDLFGEDNDSNDLIHRKKRRQESQNIQNDHDSLLPQNNDIYSRPRGKFRFPMSV  AYENENVEQSAITISDEKEQYHRDVRKQSHDSRSQKRHRRRRNQTTEEQNYSEQRGNSKI  SQOSIKYKDHSHYHTNKPCTYVSAINGIEKETHKPKTHNMYSNNTNHRKADSTPDYHKES  FKTSEVPSAIFGTMKPKKLENGRIPVSKPSEKVESDKQKYDKYVAKTQTSQNKQLEQEQK  NDSVVKQGTASKSSDENVSSTTKSMPNYSKVNDNTIKIENIYASQIVEIRRRERKVLQK  RRFKKALQKREEHKNEEQDAIQRAIDEMYAKQAERYVGDSSLLNDDSLTDNSTDASQLH  TNGIENETVSNENKQASIQNEDTNDTHVDESYPNYYEVSINQVSTTKQLSDDEVTVSNV  TSQHQSALQHNVEVNDKDELKNQSRLIADSEEDGATNKEEYSGSQIDDAEFYELNDTEVD  EPTTSNIEDNTNRNASEMHVDAFKTQYAVTESQVNNIDKTVNDNEIELAPRHKKDDQTNL  SVNSLKTNDVNDHVEDSSMNEIEKNNAEITENVQNEAAESEQNVEEKTENNVNPKKQT  EKVSTLSKRPFPNVMTFSDKKRMDRKRHSKVNVPKLPVQSKQAVSERMPASQATPPSR  SDSQESNTNAYKTNNMTSNNVNNQLIGHAETENDYQNAQYSEQKPSVDSQTETFEES  QDDNQLENEQVDQSTSSSVSEVSDITESEETTHPNNTSGQDDNDQKDLQSSFNKNE  DTANENRPRTNQDVATNQAVQTSKPMIRKGPNIKLPSVSLLEBPQVIESDEWDITDKKK  ELNDALFLYFNVAEVDVTEGSPVTRFELSVEKGVKVSRTALQDDIKMALAAKDIRIEA  PIPGTSRVGIEVNPQNPTTVNLRSLIESPSFKNAESKLTVMAGYRINNEPLMDIAKTPH  ALLAGATGSGKSVCSINSLILSKNHPRELRLLLIDPKMVELAPYNGPLPLVAPVITDV  KAAATQSLKWAVEEMERRYKLFAYHVRNITAFNKKAPYDERMPKIVIVIDELADLMMAP  QVEEQSIARIAQKARACGIHMLVATQRPVSNVITGLIKANIPTRIAFMVSSSVDSRTILD  SGGAELFLGYDMLYLGSGMNKPVRVQGTFSVDDDEIDVDVDFIKQOREPDYLFEEKELLK  KTQTSQDELFDVCAFMVNEGHIISTSLIQRHFQIGYNRAARIIDQLEQLGVSSANGSK  PRDVYVTEADLNKE</p>

[illegible]

159.	<p>atgatgaaaaagttaaagcgagtgaaattagacaaaaatatctagatttcttgggtgaa  aaaggacatatgggtgaaccttctgcaccattagtgcgaattgatgatgatacattatta  tggatttaattcaggttagcaacattaaagaaatattttagtgagcgtgaaacacctaaa  aagccaagaaattgtaacctctcaaaaagctattcgtacaaaatgatattgaaaatggtggt  ttcacagcgctcaccatacattcttgaatgtaggtaaccttctcaattggtgattat  tttaaacagaagcgattgaatttgcttgggaatttttaacgagtgataaattggatgggt  atggagccagataaaattgtacgttacgattcatccggaagatattggaagcatacaacatt  tggcataaagatattgggcttgaagaagtcgtattatccgattgaaggtaaccttctgg  gatattggtgaagggccttcaggaccgaacctgagattttctatgatcgcggagaagca  tatggacaagcagatccggcagaagaatgtatccaggtggagaaaatgaacgctatctt  gaagtatggaacttagtatttagtgaattcaatcataataaagatcatagttacacacca  ttacctataaaaaatttgatactggcatggggcttgagcgatagccctcagtttctcaa  aatgtacgtactaactatgaacagatttatttgctcataatgaatgaatcgaaaaa  gtatcaggtaaaacaatttagttaaacaacgaagaatgtggcattttaaagtaattgct  gaccacattcgtacgattgcatattgcaatttctgattggtgcatctgccaatgaagggt  agagggtatgtattacgtcgattgttacgtcgtgcggtcgttttagtcaaacgttagga  atcaatgagccatttatgtacaaaattgtgatattgttgcagacattatggaaccatatt  tatccaaattgttaaggaagagcagatttcatgaagcgtgtataaagctcgaagaagaa  cgattccatgaacattagaagatgggtttagcgtattttaaagtaatttaaaaaagct  aaagcgacaacaaatgaatttaattgggaagatgcatattaaattgtatgatacgtatggg  ttcccaattgaatttaactgaagaatagcagtgcaagcaggattgaaagttgatatgaca  acattcaggtcagaattgcaacaacacgtgacgtgcacgtcaagcagctcaaaattctt  caatcaatgcaagttcaaaagtgaagattgaaaaatattacatctgcaagttactttgtt  gggtatgatactgcgacagctcaaacacactaacacacttgatatacaatgggtaagaa  gtttcacagttgaagcgggtgaacagctatacttcatgttaacggaacacacattttat  gcaatcagttgggtggaacagttgcggatagcaggtattgtttataatgacaattttgaaatt  gctgttagtgaagtaaccaagcaccaaatgggtcaaaacttgcataaaggagtagtaca  tttggccaagttaattgtggcgctacagttgtctgctgaagtgaacaaaatgatcgcagct  gacattcaaaagaacatagtgcaacacatttattacatgcagcgttgaaatcagtagctg  ggtagatcattgttaaccaagcgtggttctacttagaagcagatcgtttacgttttgatttc  tctcattttggtccaatgactaatgatgaaattgatcaagttgaacgcttagtaaatgaa  gaaatttggaaaggtattgacgttaacattcaagaatggatattgctcagctaaagaa  atggggcgaatggcattattcgggtgaaaaatattggtgatgtgtgctgtagtaaatatg  gcacattttcaattgaattatgtgggtggtattcatgtccgcaatcttctgaaattggc  ttattcaaaatagtagtgagtcaggtacagggagctggtgtgctgctgattggaagcatta  acaggttaagcagctttcttattatttagaagatattcaagagaatttaatacagtagaaa  tcacagctgaaagtgaattctgatgatcaagtagtcgataagttacacaaattacaagat  gaagaaaaagcattattaaacaatttagagcaacgtgacaaagaattcacatcacttaaa  atgggttaattgaagatcaagttgaagaatcaatggctataaagatttggttactgaa  gtgtagtaccaaatgcgaagcaattcgtcgcgaatggacgattttaaattcaaaacta  caagatacaattatcattcttgcagtaattgttgatgataaagtagtcaggttgcaact  gtccctaaattcttaacaaataacgtttaaagccggtgatcttataacaaatggcaccac  atcgttggtggttaaaggtggcggtcgtccagatattggctcaaggtggcggtacacaaact  gaaaatatctcaaaatcattaagctttattaagattacattaaaaatcta</p>
160.	<p>MMKKLKASEIRKYLDFVEKGMVPEAPLVPIDDDTLWINSVATLKKYFDGRETPK  KPRIVNSQKAIKRTNDIENVGFTARHHTFFEMLGNFSIGDYFKQRAIEFAWEFLTSDKWMG  MEPDLLVYVTHPDEMEAYNIWHKDIGLEESRIIRIEGNFWDIEGEGSGPNTIEIFYDRGEA  YGODDPAEEMYPGGENERYLEVWNLVSEFNHNDHSYPLPNKNIDTGMGLERMASVSQ  NVRTNYETDLFMPIMNEIEKVSQKQYLVNNEQDVAFKVIADHIRTIAFAISDGPALPNEG  RGYVLRRLRLRAVRFSQTLGIDNEPFMYKLVDIVADIMEPYYPNVKEKADFIKRVIKSEEE  RFHETLEDGLAILNELIKKAKATTNEINGKDAFKLYDTYGFPIELTEELAVQAGLKVDMT  TFESEMQQDRDRARQNSQSMQVQSEVLKNTSASTFVGYDTATATQTLTHLYNGEE  VSQVEMTETVYFMTETPFYVLSGGQVADTGIVYNDNFELAVSEVTKAPNGQNLHKGUVQ  FGQVNVGATVSAFVNQNDRRDIQKNHSATHLLHAALKSVLGDHVNOAGSLVEADRLRFDF  SHFGPMTNDEIDQVERLVNEEIKWIGIDVNIQEMDIASAKEMGAMALFGEKYGDVVRVNM  APFSLELCGGIHVRNTSEIGLFKIVSESGTGAGVRRRIEALTGKAFLYLEDIQEFNTMK  SQLKVKSDQVVDKLTQLQDEEKALKLQLEQRDKETSLKMGNIEDQVEEINGYKVLVTE  VDVFNAAKARSTRMDDFKSKLQDTTIIILASNVDKVMVATVPKSLTNNVKAGDLIKQMAP  IVGGKGGGRPDMAQGGGTQPENISKSLFIKDYIKNL</p>
161.	<p>atgaatagtgagtttatatatggacgggttaacaaatttaggaggtgaagattttgagttta  ataaagaaaaagaataaagattatcgcatattaccattaggcggtgtttggcgaaattgct  aaaaattatgtatctgttgaagtagacgatgaaattgttatgttagatgctggacttatg  tttccagaagacgaaatgctaggtattgatattgttataccagacatttcatcagctactt  gaaaaataagataaaattgaaggttatattccttacacacggacatgagcacgcgattggt  gcagtgagttatgttttagaacaatttagatgcaccagtatatggatctaaattgacaata  gcgttaattaaagaaaaatatagaagcccgtaatttgataaaaaagttcgtactataca  gttaataatgattcaatttatgagattcaaaaacgtgaattatgatttctttaaatacgaca  cacagttattcctgatagtttaggtgtttgtattcacacttcattatgggtgccattgtgtat  acaggtgaatttaagtttgaccaaagtttacatggacatttatgcaccagattataaacgt  atggcagagattggtgaagaaggcgtatttgccttaatacagtgatttctactgagggcagag  aaacctggatataaatactccggaataattgattgaacatcatatgtatgatgcttttgca  aaagtgcaggtcgttgatagtttcatgttatgcttcgaactttatcagttatcagcaa  gttttaaatattgtcagcaagctaaatcgtaagtgctcatttttaggaagatcacttgaa  agttcatttaattatgtcgtcaaaatggggtatttcgacattcctaagattttgctaatt  cctataacagaagttgataattatcctaaaaatgaagtgataattatagctactggtatg  caaggagaacctgtagaagccttaagtcaaatggcgcaacataagcataaaattatgaat  atcgaaagaaggcgtatttctgtatttttagcaattacggcttctgctaataatggaagttatc  attggaatacattaaatgagcttgatcgtgctggcgacatatattccaaataacaaa  aagattcattgctcaagtcattggttgatggaagaattaaaaatgatgatttaattatg  aaacctgaatactttatcctgtacaagtgaaatttaaaatgcagatagcacatgcgaag  ctagcagctgaagcaggtgtgcaccagaaaaagatttctcttggtgaaaaaggagatgtc  attaattacaacggtaagatatgatataaataaggaagtaattcaggaatatttta  atagatggcattggtattggggatgtaggaatatcgtgttagagagaccgctcatcttta  gcgaagaatgggtatctttatgtgtgttaacgttagatcctaaaaatagacgtatagct  gcgggacctgaaattcaactcgtgggtttgtatgtacgtgaaagtgaagactttatga  cgtgaagcagaagagaagtagctgaaatagtagaggtggtttacaagaaaaacgcata  gaatggttctgaaatttaacaaaaatgcgtgatcaatttagtaaacattatttcgaaagt  acaaaacgtcgtcctatgattattccagtaatttctgaaatt</p>

162.	MNSEFIYGRVTNLGGKILSLIKKKNKDIRIIPGGVGEIAKNMYIVEVDDDEMFLDAGLM FPEDEMLGIDIVIPDISYVLENKDKLGIFLTHGHEHAIGAVSYVLEQLDAPVYGSKLTI ALIKENMKARNIDKKVRYVTVNNDSIMRFKNVNI SFFNTTHSIPDSLGVCIHTSYGAIVY TGEFKFDQSLHGHYAPDIKMAEIGEEGVFVLISDTEAEKPGYNTFENVIEHMYDAFA KVRGRILVSCYASNFIRIQVQLNIAASKLNKRVSLGRSLESSFNIAKMGYFDIPKDLII PITEVDNYPKNEVIIATGMQGEPEVALSQMAQHKHKIMNIEGDSVFLAITASANMEVI IANTLNLVRAGAHIIIPNNKIHASSHGCMELKMMINIMKPEYFIPVQGEFKMQIAHAK LAAEAGVAPEKIFLVEKGDVINYNGKMDMLNEKVNSGNILIDGIGIGDVGNIVLDRHLL AEDGFIWVTLDPKNRRIAAGPETQSRGFVYVRESEDLLEAEKVVREIVEAGLQEKRI EWSEIKQNNRDQISKLLFESTKRRPMIIPVISEI
163.	atggaaataacaatgcctaaagttaggtgagagtggtcatgaaggcaccattgaacaatgg tagttctctgttggtgatcatattgatgaatatgaaccattatgtgaagttattacagat aaagtgacagctgaagttcccttcacgatatacaggacaattacagaaatttagttgaa gctgggagacagtagctattgatataattatctgtaaaaattgaaactgctgatgaaaag acaaatgaacaactgaagagatacaagcaaaagtggtgatgacatactcagaaatctact aaaaaagcttagtgcaacagtggaacagacatctactgctaacaacaaatcaaccacgta aatggtcgcttttcactgttgattttaaactcgcttcagagcatgacattgatttatca caagttgtaggtagtggtattgaaggtcgtgtaactaagaagataatgtcagttatt gaaaaatggtggtaccacagctcaatctgacaaacaagttcaacaaaaatcaacatcagta gatatacaagtaaccaatcatctgaagacaatagtgaacacagcaacaatcaccagtaaat ggtgtgctgtaaaagcaattgctgcaaaatattggttaattagtgtaacagagattccacatgca tggatgatgattgaagtagatgctacaaatcttgtaaaacagagaaatcattataaaaac agctttaaaaaataagaagatataatctaactgtcttcttcttcttgaaaagctgta gcagatgctttaaaagcatatcctttattaaatagtagctggcaaggaaatgaaattgtc ttacataaagacattaatatttcaattgctgttgctgatgaaaataaattatcagtaact gtgattgaagcatgcagacgaaaagtcattcaaaaggtatagctagagaaaataacttcta gcaacgaaaagcgcgtaataagcaattgacagctgaagatatgcagggcggtacatttacg gtaaaataactggtacatttgggttcagtatcatcaatgggtattataaatcatccacaa gcagcgattttacaagtagaatcaatcgtaaaagccagtagtaataatgatgatgatt gcaattcgtaacatggttaatttatgtatttcaattgatcatcgtaatttagatggttta caaacaggttaatttatgaatcatattaaacagcgtatcgaacagtatactttagaaaaat acaaatatatat
164.	MEITMPKLGESVHEGTIEQWLVSVDHIDEYELCEVITDKVTAEPSTISGTTTEILVE AGQTVAIDTIFICKIETADEKTNETTEEIQAKVDEHTQKSTKKASATVEQTSSTAKQNP NGRFSFVVFKLASEHDIDLQVVGSGFEGRVTKKDIMSIVIENGTTAQSDKQVQTKSTSV DTSSNQSSDNSENSTIPVNGVRKAIAQNMVNSVTEIPHAWMMIEVDATNLVKTRNHYKN SFKNKEGYNLTFFAFFVKAVADALKAYPLLNSSWQGNIEVLHKDINISIAVADENKLYVP VIKHADEKSIKGIAREINTLATKARNKQLTAEDMOGGTFTVNNIGTFGSVSSMGLINHPQ AAILQVESIVKFPVVINDMIATIRNMVNLCTSIDHRILDGLQTKGPMNHKQRIEQYTLEN TNLY
165.	
166.	
167.	atggaggacaacatgatttatgcaggatttttagcaggaggtattggttcgagaatgggg aacgtgccattacaaaacaatttttagatattgataataaacagattttatccatataca attgagaagttcatttttagtgagtgaatttaattgagattattatcgcaacgccagcacag tggatttcccatcacacaggatattttaaaaaataataacattacagatcaacgtgtcaaa gtagttgcagggtggtacggatcgaaatgaaacaattatgaacattatcgaccatattcgc aatgtaaatgggaattataatgatgatgtgattgtaactcatgatgccgtgaagaccattt ttaactcaacgtattattaaagagaacattgaagtagcagcaaaatattggtgcagtagat acagtcattgaagcaattgatcacgattgtaattgtctaaagataaacagaacatacacagt atccctgtaagggaatgaaatgtatcaaggccaacaccacaatcatttaattataaatta ttacaagatagttatcgcccttaagtagtgaaacaaaagaaatcttatcagatgcattg aaaatcattgctgaatctggacatgcagttaaattggtacgtgggagaactatacaacatt aaagtgaacacccgtatgattttaaaagtagcaaatgccattattcaaggtgatattgcc gatgat
168.	MEDNMIYAGILAGGIGSRMGNVPLPKQFLDIDNKPILIHTEKPILVSEFNEIIATPAQ WISHTQDILKKYNI TDQRVKVVAGGTDNRNETIMNIIDHIRNVNGINNDIVITHDAVRPF LTQRIIKENIEVAAKYGAVDTVIEAIDTIVMSKDQNIHSIPVRNEMYGGTTPQSFNKL LQDSYRALSSSEQKEILSDACKIIVESGHA VKLVRGELYNKVTTPYDLKVANAIQGGDIA DD

169.	atgataatatattggtgatgacagtttaattggagggaaacgaaatgaaagctttattactt aaaaaagtgatggctcgttttgccttttagtgtaattgggattatggcaagtcctgaac gcggtcagcagcatcaccaatgaaagcacatgcagtaacaacgtagacaagcaaca acagataagcaacaagctaccgccaacaaaggagcggtcattcattcggcaagaagcg gcaaccaacgtatcagcatcagcgagggaaacagctgatgatacaaacgcaaaagtaaca tccaaacgcacattcacaacacattcagtagtttcaacaaaagtaaacgaaacacgc gagctagatacacacaacagcctcaacacaaaacaaactcacacgcaacggttcaaat tcaaatgctaaaaacagcatcatttaccacgaatggttgcgtctaatgcaccacaaca acaacacataaaatattacatacaaatgatccatggccgactagccgaagaaaaaggg cgtgtcatcggtatggctaattaaaaacagtaaaagaacaagaaagcctgatttaag ttagacgcaggagacgccttccaaggtttaccactttcaaacagctctaaaggtgaagaa atggctaaagcaatgaatgcagtaggttatgatgctatggcagtcggttaacctgaatt gactttggatcagatcagttgaaaaagtttagaggttatgtagacttcccgatgctaa actaacgtttataaagatggaaaacgcgcgtttaagccttcaacgattgtaacaaaaat gggtattcgttatggaattattggtgtaacgacaccagaacaagacgaaacaaagcct gaaggcattaaaggcgttgaaatttagagatccattacaagtgtagacgaggaatgatg cgtatttataaagacgtagatacatttgttattatcacatttaggaattgatccttca acacaagaacatggcggtggtgattttagtgaaacaattagtcacaaatccacaattg aagaacgctattacagttattgattggtcattcacatacagtagttcaaaatggctaaat tataacaatgatgattggcacaacaggtacagcacttgcgaatcctggttaagattaca ttaattatcgcaatggagaggtatcgaaattataaccgtcattgattaatgttaagac gttgaattgtaacaccgaacaaagcatttagctgaacaattaatcaagctgatcaaca tttagagcacaacactgcagaggttaatttccaaacaataaccattgatttcaaggagaa agagattgacgttagaacgcgtgaaacaaatttaggaaacgcgattgcagatgctatgaa gcgtatggcggttaagaatttctctaaaagactgactttgcgctgacaaatgggtggaggt attcgtgccttatcgcaaaaggttaaggtgacacgctatgatttaattcagtagttacca tttggaatcagattgcgcaaatgtatgtaaaaggttcagacgctctggacggttctcgaa catagtttaggcgcacacaacacaaagggcgttaagacaggtgtaacagcgaatggc gggttactacatctctctgattcaatccggttttactatgataataaacacgctcggc aaacgaattaatgctattcaaattttaataaagagacaggttaagttgaaatattgat tataaacgctgatatcagtaacgatgaatgacttcacagcatcaggtggcgacggtat agtattgctcgggtggtcctagagaagaaggtattttagtagatcaagtagtagcaagttat ttaaaaacagtaacttagctaatgtatgatacgcagacacacacagtagttatttaggt aaacagcagtaagtgaaacacacagctaaaggacacaaaggttagcaaggttagtaagtc ggtaagatcacacaacaaattggtgacgacaaagtgatggatccagcgaacaaacacagct ccaggttaagttgtattgtgctagcgcatagaggaactgttagtagcggtacagaaggt tctggtcgcacataagaaggagctactgtatcaagcaagagtggaacaaattggctaga atgtcagtgccataaggttagcgcgcatgagaacagttaccaaaaactggaactaatcaa agttcaagcccagaagcgatgtttgtattatttagcaggtataggtttaatcgcgactgta cgacgtagaaaaagctagc
170.	MLIIYWCMTLVNGGNEKALLKTSVVLVLLFSVMGLWQVSNAAEOHTPMKAHAVTTIDKAT TDKQQVPPPTKEAAHSHGKEAATNVSASAGGTADDTSNKVTSNAPSINKPSTVVSTKVNTR DVIDTQQAQTKPHTATFKLSNAKTASLSRPMFAANAPQTTHKILHTNDIHGRLAEKKG RVIGMAKLTIVKEQEKPDMLDAGDAFQGLPLSNQSKGEEMAKAMNAVGYDAMAVGNHEF DFGYDQLKKLEGLDFPMLSTNVYKDGKRAFKPSTIVTKNGIRYIGVITPPTKTRTP EGIKGVFEFRDPLQSVTAEMMRIYKDVDTFVVISHLGIDPSTQETWRGDYLVKQLSQNPQL KRRITVLDGHSHTVLQNGQIYNNDALAQGTALANIGKITFNRYNGEVSNIKPSLINVKD VENVTNPKALAEQINQADQTFRAQTAEVII PNNTIDFKGERDDVRTRETNLGNADAME AYGVKNFSKRTDFAVTNGGIRASIAKGVTRYDLISVLPFGNTIAQIDVKGSDVWTAPE HSLGAPPTQKDGKTVLTANGGLLHISDSIRVYDINKPSGKRINAIQILNKETGKFENID LKRVIYHTVMTNDFTASGGDGYSMFGGPREEGILSDQVLA SYLKTANLADYDTEPQRMLLG KPAVSEQPARGQOQSGKSGSKGKTQPIGDDKVMDBAKKPAKGVVLLLAHRTVSSSGTEG SGRTIEGATVSSSKGQLARMSVFKGSAHEKQLPKTGTNQSSSPEAMFVLLAGIGLIATV RRRKAS
171.	atgcaagagtacaaaaaatcggttaaatcagcttaaaaagcctataaatgttccggtatgag caagaacactgaaaaagtaggtggtttattttagcaagaataacagaacactggaatgtt gtaataagccaaaaagatttcaatgaatttcagaaacagataaaagctgctcaagatatt tcggaagattacgagtatataaagtcgttagagccttagatgataaagataaggaaata cgagagaagaagtagtttataataaagcagttgagcgtattgaaaacgcagacgataat tttaaccaactttacgaaaatgcaaaagccactaaagagaatatagaatagcgttaaa cttttaaaaacttactaaaagagttagaacgagtttttaggaagaataacctttgcggaa agagtttaataagttacagaagatgaacaaaactaaatggttttagcaggaacacttagat aaaaaatgaatccagaattattattcagaacaggaacagcaacaagaacaacaaagaat caaaaacgagatagaggtatgcactta
172.	MQEYQKSLNTLKKPINVPYEQETEKVGGFLFSKEIQETGNVVISQKDFNEFQKQIKAAQDI SEDEYIKSGRALDDKDEIREKDDLNKAVERIENADDNFNQLYENAKPLKENIEIALK LLKILLKELEVLGRNTFAERVNKLTEDEPKLNLGAGNLDKKNPELYSEQEQQEQQKN QKRDGMHL
173.	atgaagatgataaacaataatcggttccggtaacagctagtgtctttattattaggcgct tgtggcgctagtggccacagactctaaagaaaaatcacatttcttctaaagctggagac gtaacagttgcagatacaatgaaaaaatcggttaaagatcaaatgcaaatgcatcattt actgaaatgtttaaataaaatttagctgataaatataaaataaagttaatgataagaag attgacgaacaaattgaaaaaatgcaaaagcaataacggcggttaagataaaattgaaaa gccttcaacagcaaggttttaacagccgataaatataaagaaaaatttagctactgctgct tatcataaagaattactatcagataaaaataaaatctctgattctgaaattaaagaagac agcaagaagaagcttcacacattttaattaaagttaaatctaagaaaagcgcaaaaagggc tagatgataaagaagcgaaacaaaagctgaagaattcaaaaagaagtttcaaaagat ccaagtaaatgttgtaaatcgctaaaaaagaatcaatggactggttcagctaaaaaa gatggcgaaattaggttatgttcttaaggacaaactgataaagattttgaaaaagcacta tttaagcttaaaagatggtgaagatcagaggttggttaaatcaagctttggatcatatt attaaagctgataaaacacacagactttaacagtgaaaaacaaagcctgaaagaaaaat ctgcgacagaaggtacaaaaaaatccaaaattattgactgatgcatacaagaatcattta aaagaatacagatgtttagctttaagatcgtgatattaaatcagttgctgaagataaaatc ttaaacctgaaaaacttaacaaggtggcgacaaaggggacaaatccggcatgagccaa
174.	MXMINKLIVPTASALLLGAGASATDSKENTLISKAGDVTVDTKKIGKDIANASF TEMLNKILADRYKKNVNDKKIDEQIEKMQKQYGGKDFEKALQQGLTADKYKENLRTAA YHKELLSDKIKISDSEIKEDSKKASHILIKVSKSKSDKEGLDDKEAKQAEIEIQEVSKD PSKFELTAKRESMDTGSAKKDGELGYVLKGQTDKDFEKALFKLKDGEVSEVVKSSFGYHI IKADKPTDFNSEKQSLKEKLVQKQKPNKLLTDAYKDLLKEYDVDFKDRDIKSVEDKI LNPEKLKQGAQGGQSGMSQ

175.	atgcttttagtatttagctggttgctctaattctaagcataataatgaaagttaaaaagat gacgcagacaatggtaagaaacaagagattcaagttgacggcagcaagtttaacagat gtaaccaagaattagcttcagaatttaaaaaagagcataaaaatgctgattataattt aactatggtggatcaggggcatataagaaacaaatgaaatcagggcgacctggtgacgta tttatgctctgcaataactaaagatgtagatgattaaaagacaagaataaaagcgatgat acataaaaatagcgaaaaatagcttagtatttaattggtgataaagattcaaaatcacact tcagtaaaagacttaaaagacaatgataaattagcattaggtgaagtgaaaactgtacca gcaggaaaaatagcgaaacagatttagatacaacaataacttattaagaagtcgaaagt aaaatcggttatgctaagatgtaaaacaagtattaaattatgttgaagaagggttaatgcg aaacaaggtttttgtgataaaactgacttatataacaaaaataaaaaaattgatactgta aaagtaattaaagaagtagaacttaagaagccaatcacatcgaagctggtgctacatca gatagtaatttagcaaaagagtggtggaattcttaaaatcagataaagctaaagaaaaa ctaaagaataccactttgacgca
176.	MLLVLAGCSNSNDNNEKSKDDADNGKKQEIQVAAAASLTDVTKKLASEFKKEHKNADIKF NYGGSGALRKQIESGAPVDVMSANTKDDVLDKDKNAHDITYAKNSLVIGDKDSNYT SVKDLKDNKLLALGEVKTVPAGKYAKQYLDNNLKFKEVESKIYVAKDVQVLYNYVEKGN KQGFVYKTDLYKQNKKIDTVKVIKEVELKKPITYEAGATSDSKLAKEWMEFLKSDRAKEI LKEYHFAA
177.	ttggcatacacatacactttaaaagatattattgaaattacaggtgtaactaaaagaact ttacattattacgatgaaataggattattagttccagataaaaaatgataaaaattatcgc gtttataaacagcaagacttagaaaaattacaaaagattttaataactcaagctcttttgat tttgatatcgtaaaaataaaacaatacatttcgtatgataatgaacaattgcaaggtta ttatcagagcaaaataagcaagttagataaaaagatttctgacttacaattaatagacgc tctgtatgtgaatttattaaaggactctctctaataagataccagcattttaaacaaagaca ctacagtcacaatgatgaaagaagcatctataaaataggtcatacgaagcatatcaa tcatttttagacgtaaaagacagcttacaatcgaggatatacagacataaaattgacaact atcttcaataaaattaatcatatgtcttttgagtcattatccaatccaagatttgtagtgat ctcgtatttgagtggaaggtatttatgaacacatcagctgattttgatgatgaaacatta tgctgtattgctaaaaacatgaagatgatacgcgtttcaaagattactttaattcatat gataatcaaaaatttagcatcatatcatttcagaagctgtaattattttttgagcaatgtg aataagacgcaaatttt
178.	MAYTYFLKDIIEITGVTKRTLHYDEIGLLVPDKNDKNRYVYKQDDLEKLQKILILKSFD FDIAKIKQYISYDNEQLRKILSEQISKLDKKISDLQIRRSVCEFIKGLSLDTSILNKT LQSQYDKEASIKYGHTRAYQSFIRKDSLQSQDIRHKLITTFNKFNMHSLSHYPQDCSD LVFEWKAFFMTIADFDETLCCIAKTYEDDTRFKDYFNSYDNQNLASYISEAVNYFLSNV NKSDNF
179.	atggcaaaaaataaaagcaaatgaagcattagttaaagcattacaagcatgggatatagat cactgttatggtattccaggagactcaatcgacgcagtagtgcagattttacgtacagtg agagatcaatttaaaatttatcatgtacgtcatgaagaagtagcaagcttagcggtgct gggtacacaaaattaaactggtaaaatcggtgtggcattaaagatcgggtggcctggttta attcattttataaatggtatgtatgatgcacaaaatggataatgtaccgcaattaatatta tctggacaaaacgaatagtacagcacttggaaacgaagcattccaagaacaaaattacaa aaaattatgtgaagatgtagccgtttataatcaccaaaattgaaaaaggtgacaattgtgtt gaaatcggttaacgaagcaatttcgtacggcatatgaacaaaaggtgtagctgtgtttatt tgtcttaacgacttataaactgaaaaaattaaagatacaacgaataaaaccagtagataca tcaagaccaacagtagtatcaccacaaaataaaagacatcaaaaagcgggttaaaactaatt aataaaagttaaaaagcctgtcatgttaattggtgtaggtgcgaacatgcgaagaatgag ctacgtgaatttatgaaatggcgtaaaattcctgtcattcattaccagctaaaaca atcttgccggatgatcatccatagtagtgcgttaacttaggtaaaatcggtaccacaaa tcttatcaaaaatgcaggaagcggatttatataattggttggtacaaaactatccat gtggtattacttacctaagaaaaatattaaagccattcaaatgacacaaaatcctaaaaat atcggaactcgtttcaattattaatgtaggaattgttgagatagtaaaattgcgttgcat cagtttaactgaaaaatattaaacatgttgctgaagaccattcttaacaaaacggttagaa cgtaaaagcgtttgggataaaatggatggaacagaataaaaataaatagtaaaaccatta cgccagaacgatttaattggcatcaatcaataaatttataaagatgatgcagtgatttca gcagatgttaggtacagcaacagtttggtcaactcgatacttaaaccttggtgtaaaatac aagttcatcatttcaagttggttaggtacaaatgggttgcggtcttccaggtgcaattgca tcaaaaattgcataatcaaaatagacaagccatcgcaattgctggtgacggtgcattccaa atggttaatgcagacttcgctacagcagtaacaatgatattacctttaactgtatttgta cttaataacaaaacagttagcatttatataatgaacaaacagcagctggtgaattagaa ttatgcagttgattttctgatagtgatgcacaaatttgctgagggcagcaggtggttaa gggtatacaaatgaagatgctagcgaagtagatgctatagtcgaagaggcattagcacaa gatgtaccaacgattgttagatgtatatgttgatcctaagctgcgccattaccaggtaaa attgtaaatgaagaagcgttggttatggttaagtgggcatttagatcaattactgaagat aaacatttagatttagatcaaatccaccaaattcagtgccagcaaaaacggtttctta
180.	MAKIKANEALVKALQAWDIDHLYGIPGDSIDAVVDSLRTVRDQKFYHVRHEEVASLAAA GYTKLTKGIGVALSIGGGLIHLNMGYDAKMDNVQLILSGQTNSTALGTFKAFQETNLQ KLCEDEVAVYNHQLIEKGDNVFEIVNEAIRTAYEQKGVAVVCPNDLLTEKIKDTNKPVD SRPTVSPKPKYKDIKKAVKLINKSKPVMILGVGAHAKDELREFIEMAKIPVHSLPAKT ILPDDHPYSIGNLKGIGTKTSYQTMQZADLLIMVGTNYPYVDYLPKKNIKAIQIDTNPKN IGHRFNINVGIVGDSKIALHQLTENIKHVAERPFLNKTLEKAVWDKWMEDQKNNNSKPL RPERLMASINKFIKDDAVISADVGTATVWSTRYLNLGVNNKFIISSWLGTMCGCLPGAIA SKIAYPNRQALAIAGDGFQMVQDFATAVQYDLPLTVFVLNNQLAFIKYEQQAAGELE YAVDFSDMDHAKFAEAAGGKGYTIKSASEVDAIVEEALAQDVPTIVDVYVDNAAAPLPK IVNEEALGYGKWAFRSITEDKHLDLQIPPIISVAKRFL
181.	gtagtagtttagggcttgcaacgcac
182.	caccatcatagaacatacaaatgtcagc
183.	ctgatactggacaacatagaga
184.	aagtaacggttatctttcgaatggt
185.	atttctggcactcaagtatatcaagac
186.	tggttaggtggtggtgtaggc
187.	ataatgcaactacaactcagcc
188.	ttgatcggtgatgtattttgattagat
189.	ctacaataactacagccggttaca
190.	gtgaatgaagttataaccagcag
191.	cacgctaaagcatcagtgacaga
192.	agcattttgatgtgtgctgtgtgtgt

193.	gaatccccaagcacctaaac
194.	gtaaacgttgatcaagcacact
195.	tttgcaataacagcaacatctgggtgcag
196.	gaaacttctggaagctggaattgtacgg
197.	atgagaaaaactaaaaattgtatgtacaaattggaccagcttcagaatcagaagaatgatt gagaaattaatcaatgctgggtatgaacgttgcacgattaaacttttcacatggtagtcac gaagagcataaaaggtagaattgtacaaattcgtaaagttagctaaaaagattagacaaaatt gtagcaatttttagatacaaaaaggtccagaaaattcgtacgcataatatgaaagacgggt atcattgaacttgaacgtggcacaaggaattatgttagcatgaatgaagttgaaggaaaca cctgaaaagttctcagtaacataatgaaaacttaattaacgatgttcaagtaggttcatac atcttacttgatgatggcttaattgaattacaagttaaagatatgaccatgctaaaaaa gaagttaaaatgtgataattttaaactctgggtgagcttaaaaacaaaaaggtgttaactta cctggcgttaagagtaagtttacctgggtattacagaaaaagatgctgaagatatccgtttc gggtattaaagaaaatgttgacttcattgcagcaagtttcgtacgtcgtcctagtgatgtt ttagaanaattcgtgaaattttagaagaacaaaaagctaactttcagttatccctaaaaatt gaaaaccaagaaggtattgataaatttgcgggaaattcctgaagtgctgtaggtttaatg gttgacgtgggtgacatgggtgttgaattccacctgaaaaagtaccatgggttcaaaaa gatttcaatcagacaatgtaacaaattaggttaaacaggttattacagctacacaaattgtta gattctatgcaacgttaaccacgtgctacagctgcagaagctagtgacgttgccaacgca atctatgatgggtacagatgcagtaattgttatctgggtgaaactgctgctgggttatatcct gaagaagctgtttaaacaatgagaaaatttgctgtatcagctgaagcagcccaagattac aaaaagttattgtcagatcgtactaaattagttgaaacttcatttagtgatgctatcgtt atctcgtttgcacatacagctttaaacttaaatgttaaagcaattgtagctgctactgaa agtggtttcaacggcagctactatctccaaatattcgtccacattcagacatttatggcgtg actccaagtgaagaaaactgcacgtcaattgttcaattgtttggggagttcaacctgtagtt aaaaaaggacgttaagagtagacatgcatgtttaaacaatgcagttgccaacagctgttgaa actggttagagtatctaatgggtgatttaattacttactgctgggtgacaaactgggtgaa actggaactactaaattgatgaaaatccacctagttgggtgacgaaattgctaatgggtcaa ggatttggacgtggatcagttgttgggtactacgttagttgctgaaactgtttaaagattta gaaggttaaagatttatctgacaaaagttatcgttactaaactcaatcgatgaaacgtttgta ccttatgtagaaaaagcttttaggcttaattacagaagaaaatgggtattacatcaccaaggt gcaattgttgggttagaaaaaggtattccaacagttgtagggttagaaaaagctgttaaa aacataagcaataacatgttagttacgattgatgctgctcaagggtaaaattccttgaagga tatgcaaacgtacta
198.	atgcaattcgataatattgacagtgctttaattggcctttaaaaaatggagaaccaattatt gtagtagatgatgagaatcgtgaaaatgaaggtgatttagtagcgggtactgaatggatg aacgataatcaccattaaatttatggcgaaaaggaagcaaggggattaaatgcgcaccagtg tctaaagattatgcacaacgtttggatttgggtacaaatgggtgatgataaactccgacatc tttgggtacgcaatttcacagtgagttatgatcatgtagatacaacaacaggaatttagtgc tatgaacgtacatttgactgcaaaaagctcattgatcctagtagtgaaagtaaaagtttt aatcgtcctcgtcatttatttccatttagtagcacaagataaaggcgtatttagctagaat ggacacacagaagcggctgttatttagctaaacttactggtgcaagcccgctgggtgc atcttggagattatgaatgatgacggcagcgtggcgaaaaggacaagattacaaaaagttt aaagaaaaacatcaattaaagatgattacgattgatgatttaattgaatattcgtaaaaaa tagaaccagaaaattgaatttaaggcaaaaagtgaaaatgcctacagatttcggaaacttt gatattgatgtgttttaaaagcgacatacacagatgaagagatagttgtactgacaaaaggt gcaattcgacaacatgaaaatgtacgcttacattctcgtgctcctacaggcgatatttcc catagttcaacgttgtgatttgggtgctcaacttgaatcgtctatgaagtatatcaatgaa catggtggcatgattatctacacccaagaggtcgtggcattaggtattgttaaaaaa ttacggcgcatatgaatttaattgagcaaggatattgatcacagtaactgcaaatttagcat gggttttgatgaagatttgcgagatttatcatattgtgacagattttaaaaatttttaac atcgaaacattatcaatttattaaagtaataatccaagtaaaatttgagggttaaaacaat ggcattgatattgcagaaagaattgaagttatcgtaccagaaacgggtacataatcatgat tatatggaaacgaaaaaataaaaaatgggtcatttaata
199.	atgaaaaatgaaaaaatttagtcaaatcatcagttgcttcacatcaattgactgcttttgct tcgaattacagttgatgcagctcaacatatacacacctgtaagcgagaaaaaagtagatgac aaaatcaactttatacaaaaacacagcaacatctgataatgataaaattgaattatttctcaa atttttaacgtttaatttcattaaaggataaaaagttatgacaaagatagcttagtacttaag cgagccggaaacattaatcaggttataaaaaagcctaataccaaaagattacaattactca cagttttatttggggcggttaagtataatgtttcgggttagttcagaatacaaatgtagctgta aatgttgggtgactatgcacctaaaaatcaaaaatgaagaattccaagttcaacaaacattta ggttattcttattggcgagatattaatatctaatggcttatcaggtggattaaatgga tcaaaatcattttcagaaacgataaaattataaaacaagaaagttacagaactacgattgat agaaaaaacaatcataaatacaattgggtgggtgttgaggcgcaaaaattatgaataat gggtggggaccatattgtagagatagttatgaccaacatattggtaatgaactgttttta ggcggttagacaaaagtagttcaaatgctgggtcaaaatttcttgccaacacatcaaatgcct ttattggcggtggttaactttaaccagaaattataagcgtactttctcataaaacaaaat gatacaaaaaaattctaaaatcaagtaacttaccaaagagaattggatagataactaat caatggaatcgactacactgggttggttaataactcaaaaaatcaaaatcacagtaacgttt acatctacttatgaagttgactggcaaaacatactgttaaatattcgggtacggattctt aaagaaactaatcctggagta
200.	Atgaagaaaaagcgttactaccattattttttaggtattatggctcttttggctgggtgt Gactatttctaaacctgaaaaacgttagtgggtttttctacaatacattcgtagatccaatg Aaaaatgtattggattgggttgggaaataacttataaacgacaattatgggttagctatt Attatcttgatttggtaattcgtattattttattaccattcatgttgcacaaactataaa Atatgcatatgatgcgtcaaaaaatgaagttgcaaaagcagaagttgaaaaaattcaa Gaaaaagtgaaacgtgcgcgtacadaagaagaaaaaatggctgcaaaacgaagattaatg Caagtataaaaaagtagacatgaaccggattaaagagtagttgggtgtgtttaccaatg Ctaatccaattaccaatcatcatgggtattatactttgtacttaagaccaaactttagat Ggtttgttttaaatatccacacttcttatgggttcgatttaggacgtcctgatatttggatt Acaattattgcccgtgttttatactttatccaagcatgttatcaagtaaaacgatgcca Gacgaacaacgtcaaatgggttacatgatgattggtcatttccaatattgattatctgg Attatcatatgaagtcagcatcagcacttgggtttgtactgggtcagtcagtcggcgttctct Gtagttcaaacacactttgcgaacatttattatgaaaaagtcgctaaaaaagaagtacaa Cctttcattgaagcgtatgaagagagcacaacggcgagcaataaaaaaggcaaaaaac acacaagttgtgtctaaaaagaaaaagaaa

201. atgaatttatcagacaacaaaaatttagtatcagaaaaatataatgtcggtatttttca  
gctttaattgacctgttactttttatctactaaccgacacagcgctgagcagag  
caaaatcagcctgcacaaaatcaaccagcacaaccagctgagcgaatacacagcctaac  
gcaaatgctgggtgctcaagctaattcctacagcacagccagctgacactgccaaccaagga  
caaccagcagtaacaccagcaaaccaaggtggacaggctaatccagcaggaggagcagca  
caaccaaatacacaaccagctggacaaggttaataagctgacccgaataacgctgcacaa  
gcacaacctggaaatcaagcaaacaccggcaaaccaagcaggtcaaggaaataaccaagca  
acaccttaataatgcaaacaccggcaaatcaaacacagccagcgaatgctccagcagca  
gcgcaaccagcagcagctgtagcagcaaacgcacaaactcaagatccaaatgctagcaat  
actggtgaaggcagttatatacagacattacatttgatgatcctgccatatacagat  
gagaatagacaggtccaactgtactgttacagataaagtaaatgggtattcatttaatt  
aacaacggtaagattgggttctgtaactcagaattaagacgaagcgatattggttgataag  
aataaccctcaaaactatcaagctaaaggaacgctggctgcataggctggtgtaagca  
aatgatctacagatcatggttaacttcaacgggtatttcaaaactgtaaatgtaaaacca  
gattcagaatataattataactttactactatgcaaacgaatagtaagcaaggtgcaaca  
aatttagttattaaagatgctaagaaaaactgaattagcaactgtaaatgttgtaag  
actgtactgcacatttattaaagtacaaactgatgctgagctttagattacaattt  
attcctgacaatacagcagttgctgagcttcaagaattacaacaaataaagatgggttat  
aaatcatttctatctgataatgtaggtctattctcaggatcacatttatatgtcaaaa  
aatagagatttagcaccgaagcaactaacataaagaatatactatttaactgaaatc  
ggtaacaatggtaatttgggtgcttattaaagcagatcaatttaaatatgaagtaaca  
ttaccacaaggtgtaacttactgtaataattcatttaactacaacattccctaatggtaat  
gaagcagctacagttattgaaaaatgactgttaattatgatcaaaatgcaaaataaggt  
acatttcaagccaaggtgtgacaacggcagctgggtacacacactaaagaggtttattc  
ccagataaatctttaaattatcatataaagtttaagttgcaaatatcgatcacactaaa  
aatattgattttaaagtaaaatatacatatcgtagcttccagatgttgtaattataat  
gcgcaaccagaagttacactaactgcagatccatttccagtagcgggtgaaatgaacaaa  
gatcggtgcaacaacagtaaaactcacaagttgataatagtcattacacaacagcatca  
attgagatacaataaaacttaaacacaagcagatatactattttaaagagatgcaaat  
catgtttaaactgcaaatcgtagcttcaagcggatattgatgggttttagtaactaaat  
caagctgcatttaattgataatcaagcagcaattgctgaattagatactaaagctcaagaa  
aaggttacagcagcacacaagtaaaaaagttacgcaagatgaagttgcaagcacttgta  
actaaaattacaatgataaaaaataatgcaatcgcaagaaataataacaaactacagca  
caaggtgtcacaactgaaaaagataatggtagcaggtgtagaacaagatggtattaca  
ccaacagttaaacctcaagcgaacaaagataattatccaagcagttacaactcgtaacaaa  
caaattaaaaagtcacatcatcattacaagatgaaaaagatgtagcaaatgataaaat  
ggtaaaattgaacaaaaggcaattaaagataattgatgcagcaacacaaatgcacaagta  
gaagccattaaaaacaaagcaatcaatgataattcaactacacctgctacaacagct  
aaagcagcagctcttgaaagatttgacgaagttgttcaagcacaataatgataacagcact  
ttaaactcctgatacaacaataatgaagaagtagcgggaagctattgaacgtattatgcaagct  
aaagttctggtgtttaaagcaattgaagcgaacagcagctgcacaagatttagaaaggtt  
aaaaacgaagaaatctcaaaaattgaaaaatttactgactctacgcaacacaaaatggat  
gcctataatgaagttaaacaagctgcaacagctagaaaagctcaaaatgctacagtttca  
aatgcaacaaatgaagaagtagcagaagctgtagcagcagtagatgcagctcaaaagcaa  
gggtttacatgcacatcaagttgtttaaatacaaacaggaaggtgctgatacaaaaatcaaaa  
gtattagataaaaatcaatgcaattcaaacacagcaaaaagttaaacctgagcgtgatac  
gaagtagaanaacgcataataacagcgaacaaagaaatcaaaaatagcaatgcttcaact  
acagaagaaaaaacagcgtgcataacagaattagatactaaaaagcagaagcaagaaca  
aatcttgatgctgcaaatacaacagctgtagtaacaacagctaaagacaatagattgct  
gcaatttaactcaagttcaagctgccacaactaagaaatcggtgcaaaagcggaatcgct  
caaaaagcaagtgaaactgaaacagcaattgaagcaatgaatgattcgactactgaagaa  
caacagcagcgaagacaaagtggtcaagcagtagttactgcaaacgctgataatagat  
aatgctgcagcaacaaatgtagtgataatgcaaaaactacaataagctacacatcgca  
gccattacacctgatgcaaatgttaaccagcagcaaaaacagcaattgcaagataaagta  
caagctcaagaacacagcaattgtaggaataacggctcaacaactgaagaaaaagcagct  
gcttaaacacaagttcaaaactgaaaaaacacagctgtagccgcaatagatgcaagcaca  
acaaatgcgggaagttgaagcgggttaaaaaagcagcaattgctaaaattgaagcgattcag  
ccagtaacacaacactaaagataatgcaagaaagcaattgctacgaagcgaatgaacgt  
aaaacagcaatcgctcaaacgcaagacattactgctgaagaaatgcaagcggctaatgca  
gagctagataatgctgtgacacaagcaaatagcaacattgaagctgctaatagtcaaaat  
gatgtagaccaagcgaacacagcaggtgaaaatagttatgatcaagtaacaccaacagtt  
aataaaaaagcaactgcagcttaagaaatcacagcaattttaaatacaaaatgcaagag  
attcaagctacgcagatgcaacagatgaagaaaaaacagcagctgagtgctgaagcaaat  
actgaaaatggtaaaagcaaatcaagccatttcagcagcaactactaacgcacaagttgat  
gaagctaaagcaaatgcagaagcagcgatttaagcgggttaacacacaaagttgtgaagaaa  
caagcggctaaagatgaattgatcaattacaagcaacgcaacaaatggttatcaataat  
gatcagaacgctacaacagaagaaaaagcagctattcaacaattagcaacagcagtt  
acagacgcgaaaaataattacagctgcaactgataatgggtgtagatcagcggcaaaa  
gacgctggaagaaattcaattcaaaagcagcaaacagcaacagcgggttaaatcaaatgct  
aaaaatgattgattgataagctgtgacaactcaaaatcaagcaattgataatcaaaactggt  
gctacaactgaagagaaaaatgcagcaaaagatttagttttaaagctaaagaaaaagcg  
tatcaagatatcttaaattgcacaaacaaactaatgattgtagcgaattaaagatcaagca  
gttgctgataattcaaggtattactgcagatacaacaattaaagattgtgcgaagatgaa  
ttagcaacaaaagcaaacgaacaaaagcgcttatgcaaaaactgcagatgagcactact  
gaagaaaaagaaacagcaaatcaacaagtagacgcacaaatcaacacaggttaatacaaaat  
attgaaaattgcagctcaatcgatgataaacactgcaaaaagataatgcaattcaagca  
attgacccaattcaagcatcaacagattttaaagcaatgcaagagcgaatgctaaact  
gaaatgcaaaaataaaataactgaaatatttaataatgagactactaatgaagaaaaa  
ggtaacagattatggaccagtttagagcagcatatgaagaaggtttaaataatattaatgca  
gcaactactacaggtgattgtaactgcttaagataacagcagtaacaaaagttcaacaa  
cttcatgcaaatcctgttgaagaaaccagcaggttaaaaaagaaattagatcaagctgcagct  
gataagaaaaacacaaatagaacaaacacaaatgcatcacaacaaagaaatgaatgatgca  
aaacaagaagttgatactgaattaaatcaagcgaacaaatgctgatcaatcatcaaca  
aatgaataatgttgataatgcaagtaagaaagcgaatgaatgaatgcaagtttaaaaca  
tttagtgattacaaaaagattgcttagctaaatgaagatgcatataatgctaaagta  
aacgaagcgggataactcacaacgctcagctcaagtgaaattgctgaagcgaacaaaaa  
cttgctgaatttaaaacaaactgcggatcaaaatgttaataagctactttaaagatgac  
attgaagttcaaatctataatgacttagataatattaaagattacacaattccaacaggt  
aaaaaagatcagctacaacagatttatactttagcagatcagaagaaaaataatatt  
tcagctgacactaatgcaacacagatgaaaagcaacaaagcaattaaagcaagttgaccaa  
aatgttcaactgcatagaagcatttaataatgggtgtgataatgggtgacgttgatgat  
gcatttaacacaaggttaagcagcaattgatgctattcaagtagatgctactgttaacct  
aaagcgaaccaagctattgaagttaaagcagaagatcagaagaaatctattgatcaagtt



gaccagtttaactgctgaagaaaaactgaagcattagcaatgattaacaaattacagat  
caagctaaacaaggtattactgatgcaacaacaactgctgaagttgaaaaagcgaaagct  
caaggacttgaagcatttgataacattcaaatcgactcaacagaaaaacaaaagctatc  
gaagaattagaaactgcactagaccagattgaagcaggtgtaaatgtcaacgctgatgct  
acaactgaagaaaaagaagcgtttacgaatgctttagaagacattttatcaaaagcaact  
gaagataatttctgatcaaaactacaaatgcagaaatcgctactgtcaaaaatagtgcgctt  
gaacaacttaaagcacaacgtattaatcctgaagttgaagaaaaatgctttggaagcaatc  
agagaagtggttaacaagcaaatagaataattaaaaatgcagatgcagatgcacggtg  
aaagaaattgcacgtacggatttaggttagatattttgacagatttgcgtataaattagat  
aaaacacaaacaaatgcagaagttgctgaattacaaaatgtaacgatacctgcaattgaa  
gcgatttgctcctcagaatgatccagatgctaatgataactaataatggtagataataat  
gatgcaacagcaaatccaatgctaatgcaacaccagaaaatactggacaacctaacgta  
tctgagacgacagctaatggcaagcagacgcttctccgacaacaccaataatagtgtat  
gcggaacaggtgaaacaacagcaacatcagcaactgatgatgcaaatgataaacgcgaa  
gctaataacaatttctagtgtagatgcatcaacaacagtcgacaatggataacgatgta  
actagtaaacagagtagaatcaactaataacggcacaactgataaacctgtaacagaa  
actgataatgcaacgcccagcagaagcacaacaaataacaatagtacaactacagcaaca  
aacgagaatgaccaacaggatcaacagcaacggctccaacaactgcgagcacagaagca  
gcatcatctgctgatgcaagataatgcatctgtaaatgattcaaaacaaaatgctgaa  
gtaaataatagtgtgaattctcaatcaactaatgacaagggtgcacaacaaaatctgaa  
aataagcctaaggcagaaaaagatggtagtgattcaacaatcaaatgtggtgaaatca  
acaactgaacattgccttcagcagacataacagaaccaaatagtaccttctaatacatca  
aaagataaagaagaaagtacgacaaatcaaaactgatgcaggacaacttaagctgaaact  
aacgttgcatctaacgaagcagataaatcgccaagcaagctgatactgaagtttcgaat  
aaaccatcaacatctgcatcttctgaagcaaaagaaaaaatgacttcaactaatcttagc  
caaaaagatgatcggcaacagcagataactaatgatacgcaaaaatcagttggttcagct  
gcaacaataaagctacgcaaaacgacggtgccaatgcatctccagctacagtttcaaat  
ggaagcaatagtgttaatacagataatgcttaagttaactaacactgacgaccaccaagct  
aagacaaaatcagctcaacaaggaaaagttaataaagctaaacaacaagctaaaacttta  
ccagatactggtatgtcacataatgacgatttaccatgtgctgaattagctctaggtgca  
ggtatggcattcttaattagaagattcactaagaagaccaacaaactgaagaa

202.	atgaaactaaaaatcatttgttactgccacttttagcattgggattattatcaacggctcgga gctgcattaccgagtcacgaagcatctgcagatagtaataacggctataaagaatgact gtggatcggttatcacactgttcccttacacaatttcagtagatgggtattactgcattacat cgaaacttactttatcttcccagaaaaataaaatgttctttatcaagaattgacagttaa gtaaaaaatgaattagcttctcaacgtgggtgttacacagaaaaaatataatgcccaa acagcaacttatacgcttactttgaatgatggtaaaaaagtagtgaatctaagaaa aatgcagcgtcaaaaatcaattgatccaagtacaatcaaacagatacaaatgttagtt aaa
203.	atggctatataaaagataagccaataacaaatggctcgctgtaatatgacttcgttagat ttcgcagaaatcacgaaaactcacactgaaaagtcattatataaacggctaccgaaaaaa gggggacgttaacaaccaaaggtaaattgactgtaagacaccatgggtgggacacaaaacgt caataccgtgttatcgatttcaaacgttaacaagatgggtatcaatgcaaaagttgattct attcaatatgatccaaacggctcagcaaacatcgcttttagttgtatgacagacggtgaa aaacgatatacatcttgcctctaaaggattagaagtaggtcaaatcggtgaaagtgggtgt gaagctgacatcaaaagttgtaacgcattaccattacaaaaacattccagttggtacagta gtgcacaaacatcgagcttaaacctggtaaggtgggacaaatcgctcggtcagctgggtgca agtgctcaagtagcttggttaagaaggttaaatacgtattaatcagattaagatctgggtgaa gttcgtatgatcttacttacttgcgtgtacaaatcggtcaagttggttaacctacaacac gaattagtttaacgttggttaagccggagcttcaagatggaaaggtatccgtccaacagtt cgtggttctgtaatgaaccttaacgatcacccacacgggtgggtggaaggtogtgcctct atcggtagacatctccaatgtcaccatggggtaaacctacgcttggttaagaaaaactcgt cgtggttaaaaaatcatcagacaaacttatcgttcgtggagcgtgaagaaaaa
204.	atgttagtaaatcgtttaacccttttgataatttattattatcgtctttaaattgcagca ataccgattgtactgttttactatgtttaactgtttttaaagtgaaggtatttatgca gctattacaacacttggtgtaacattactaattgcaataccatttttcaaatgccagtt gggtatcgcttctgggtcagtagtcgaaggtttcttccaaggtatcattccgattgggtat atcgttatgatggcagtagttgttatacaaaattactgttgaatctggacaatttttaaca attcaagatagttatcaaaatatttcacaagaccaacgtattcaagttttactttattgga tttgccttaacgcatttttagaaggtgcagcaggatttgggtgtaccaattgcaatttgt gcaacttttatacacaaataggatttaattccattaaaagctgcgagtttatgtttagtc gcaaatgcagcgtctggtgcttttgggtgcgattgggtatccctgtaggtgtgttagaaaac ttgaaattacctggagatgtttcagtagtttaggtgttctcaatcagcaactttaacattg gcaatcataaatttcattattccattcttacttatctttattatttgatgggttttagaggt gttaagaacattaccagcaatttttagtagtttcaatcattatacattactcaagga ttattaactgtattcagtggaactgaattagcagatattattccacgttattaacaatg ttagcattagcagttatttttcaaaaaattccaaccaaacaacatttatcgtgttaataaa gatgaagaatttgaaactgcaaaagcacattctgcaaaagcagttattacatgcatggagc ccattcatgtatttaacagtcattgttaattgatttggagtcgcccattctttaaactta ttcttaccaaatgggtgctttatcatcatttagttttaaatcaacttaccgtggaacaac agcgaagttacgcataaacatttagttatgactttaaatattattggcaaaacaggtgaca gctattttataactattattattacaattttaatgtctaaaaaggttaactttaagat gcaggtagattatttcggtgtacatttaagaggttgggttaccagttcttacaatttgt ttcatcttagcaatttttcaaaatcacaaacttatgggtgggttaagtcagcaatgggtcaa ggattatgctaaagcaggttaattgtcttccagttctatcaccaatttttaggttggaatggt gtgtttatgacaggtacagttgttaataacaactcattatttgaccaattcaagcttct gttgcacaacaatttggaacaagtggttcaactcttctgtatctgtaatacagttggtggt gtagcggcaaaattgatttcaccacaatcaattgcaattgcaactgcagcagtaaaacaa gttggtaaggaatcagaattataaaatgacattgaaatacagttgattgtttactaata tcatctgtatttggactttcatcttgcattatta
205.	atgcttaaaaaataaaatattaactacaactttatctgtgagcttacttggccctcttgcc aatccgatttagaaaaatgctaaagctgctaacgatactgaagacatcggtaaaaggaagc gatatagaatttatcaaaagacagaagataaaacaagtaataaatggggcgtgactcaa aatattcaatttgattttgtaaaggtataaaaaatatacaaaagatgctttgatattaaag atgcaaggtattcattagctctagaacaacattatacaactataaaaaaactaatcatgtt aaagctatgcgtagggcattccaataataatttggtttaaaaaaataatgataaatgtt cttttaatttaattttaccataaaataaaatgaatctacaacgtgagtcagatatta ggatacaaatatcgggtggttaatttccaatcagcccccactcgttggttaattggatcattt aactatttcaaatcgatttagctatacacacaacaaatttatgtaagtgaagtgaacaacaa aactcaaaaagtggtttatggggcgtcaaaagcgaattcatttcgccactgaatcaggtcaa aatcagcctttgatagcgtttattttaggtacataaacctcatagtaagatcctaga gattatttcgttccagacagtgagttaccacctctgtacaaagtggtttaacccttca tttatcgccacagttatctcatgaaaaggttcaagcgatacaagcgaatttgaaattact tacgggaagaacatggatgtcactcatgcccattaaaagatcaacgcattatggcaacagt tatttagacggacatagagttccataatgcatttgaataagaaactatactgtgaaatac gaggtcaattggaagactcatgaaatcaaggtgaaaggacagaat
206.	atgaaaatgaataaattagtcacaatcatcgttgcacatctatggcattattattactt tctggtactgctaatgctgaaggtaaaataaacaccagtcagcgtaaaaaaagtcgatgac aaagttactttatcaaaaacacagccacagcagattctgataaattttaaatttcacag attttaacatttaatttcataaaagataaaagttagataaaagatacttttagtacttaaa gctactgggaatttaactcaggtcttgtgaaacctaatcctaatgactatgacttttca aaattatattggggagctaaatacaatgtatctataagctcacaactcaatgattcagta aacgtcgttgattatgcacaaaaaatcaaaatgaagagtttcaagttcaaaatacttta ggctacacatttgggtggtgacattagttatcttaattggtttatctggtgacttaattgga aatcagagctttttctgaaacaatttaattataaacaagaaagttacagaacaacattaaat cgcaacacaaattataaaaatgttgggtggggagttgaagcacataaaattatgaataat ggttggggaccttatggaagagtagcttccaccacaacataggttaagtaactcttctta gctggcagacaaagcagtgcatagctggccaaaacttcatagcgcaacaccaaattgcca ttattatctagaagtaacttcaatccagaatttttaagcgtactatcacacagacaagat ggcgctaaaaaaatctaaaattacagtaacttatcaacgtgaaatggatttataccaaat cgttgggaatggcttctactgggcaggcgcaattataaaaaactttaaaactagaacattt aatcaacatatagaattgattgggaaaatcacaaagtgaatttggtagatacaaaagaa actgaaaacaataaa

207.	atgaatagagagatgttgatatttaaatagatcagatattgaacaagcgggaggtaatcat tcacaagtttatgtggacgcatttaacagaagcatttaacagcccatgcgcacaatgatttt gtacaaccgcttaagcgcgtatttaagacaggatcctgaaaatggacacatcgcagatcga attatttgcaatgccaagtcattatcggtggtgaacacgcaatttcaggtatttaagtggata ggtagtaagcacgacaatccatcgaacgtaatatggagcgtgcaagtggtgctcattatt ttgaatgatccagaacgaattatccaattgcagttatggaagcaagtttaattagtagt atgctactgcagcagtttcagtgattgcagcaagcattttggctaaaaaaggattttaa gacttaacaatcattggatgcgggctaatcggagacaagcaattacaaagtattgttagag caattcgcattcattgaacgcgtgtttgtttacgatcaattctcgaagcatgtgcacgc tttgttgatagatgggcaacaacagcgtccggaatttaattttattgcgacagaaaatgct aaagaagcagtatcaaatggtgaagtagtcattacatgtaccgtaacggatcaaccatac attgaatatgattgggttacaagaagggtgcatttattagcaacatttctatcatggatgtg cataaagaagtcctttattaaagctgacaagtcgtagtagactgggtcacaatgtaac cgagaaaaaagaactatttaaccaattgggtgttagaaggtaaatccagcaagaagctctt catgctgaactaggacaacttgtgacaggtgacataccaggacgtgaagacgattgatgag atcatattacttaataccgatgggtatggctatcgaagatatttcaagtgccttattttatt tatcaacaggcacaacaacaaaatattgggacaacattgaacctatat
208.	atgaaaaaattatggttattttcgggtacgagaccgaagcaataaaaatggcaccatta gtaaaagaattgatcataatgggaactttgaagcgaacattgtgattacagcacaacat agagatattgttagatagtggttaagtattttgatattcaagctgatcatgatttaaat attatgcaagatcaacaacatttagcaggccttacggcgaattgcacttgctaaacttgat agcatcattaatgaggaacaacccgatattgatttttagtacatggtgatactacaacgact tttgttaggaagtttggcagcattttatcatcaaatccggtcggacatgtagaagctgga cttcgaacacatcagaataactcaccatttctgaagagttaaatcgagtcattggttaagt aatattgtcgaattgaattttgcgccaaacagtaattgcagctaaaaatttactttttgaa aacaagacaaaagagcgtatctttattactggaaatacagttattgacgcattgtcaaca acagttcaaaatgattttgtttcaacgattatttaataaacaataaaggcaagaagttgtt ttactaacagcgcacgtcgtgaaaaatattggggaaccgatgcatcagatttttaagca gtaagagattttggcagatgaatataaagatgtgtcttcatttatccaatgcatcgtaac ccaaaggtaagagcgtattgcccgaataatttatctgggagaaatcggattgaatttaatt gagccatttagatgcgattgagttccataattttacaaatcaatcgtaacctggtgacgaca gattctggtggtattcaagaggaggctcctacatttggaaaacctgtgttggtatttaagg aatcatacacagcgtcccgaaggcgttgaggcgggaacatcgagagtaattggcacagat tatgacaattattgttcgaaatgtgaaacaattgattgaggatgatgaagcgtatcaacgt atgagtcgaagcaataatccatattggtgatggacaagcatcacgacgtattttgtgaagca atagaatatatttttggtatgcgcacagacaagccggatgaattcgtacctttacgtcac aaa

209. atgattatgggtaatttgagatttcaacaggaatattttcgatatatacaaaaataatata  
gaatcaacgacacaccgtaattgctgattgggttaaactcgctaaaaatgttgaagctact  
aaaatgatgtatgcattatcgacaatttgcaacaacatgcattatataagacatttttt  
gatgttactaccgatgacaatttaacaatgatattcatgaatttctgccttttattgag  
atgaatacaagttccattcttccgcaaaactatgatttagaagcttttttaagcaagaa  
ttaagcttaccattttaatgattccctttatcaagtttaattgtttcagttcgt  
gatgtgcataatactattagattttcatgtgtccattttcgatgatagtcgaattgat  
atttttcttgatgatttatgcaatgcatactgtggcaactactgttttaacaactactga  
cagcatgcacataataatagaatgatgataaagacaatcaagatgcacgcataatagca  
ttagactcaaaactattttcggttagagaataactctgacatccatttgatagttatttt  
ccaattaaagcatccatttgaacaagctttatatcaaacgtatttgatgtgatgatgaca  
tcaatagatatggcatcgttggctgttagtggtatttagctaatacatataatgagtcac  
caacatgatgtcacattagggtatacatgtaccatcacatttaccacaaatgatttacacgga  
aatattgtgcccgttaacgttaacaatcgatgcaaaagatgtatgtcaacgttttacaaca  
gattttaataaattgtgtgttgcacaaatgtgcgaattacagtcgcgaagcttctcgctt  
tcactagagactatttttcatgtttatcatcatatgatgtcttgttgaatgatgttatt  
gaggatgtacatcaaatacatgatgcacatacatctttagcggatattgaaatttttcca  
catcaacacgggttcaaaattatataaacagtcgacataatgatttgcctcactcag  
acgtgagtgacttagtgcgaatttttatttgcaatttactgaagaaatggaaataaa  
cgacaactgttagatgaacttaatttgatgacagaacgtgatattcaatttatgacgat  
atcaatttaagtttgcctgagatagatgatgcgcaaacagttgttaccctatttgagcaa  
caagttgaagcaacgcgaatcatgtcgtgtgcaatttgacggaggtgtttataacatat  
caacattgaatgcacgcgcaatgatttagcacaccgtttgagaaaccagtatgggtgtt  
gaacctaatgatcgtgtcgtgtcatagtcgaaaaagatttgagatgataatagcgtat  
atagggtgttgaaggtgtgtgggttaccgtgcaattgatccgaactatccaaagtgat  
cgtcaggagtagacttttaaaagatgtaacgcctaaagtgttaataacgtaccaagcttta  
tatgaaatggtaacaaaataatatacattgatttgaataagatagcgtggaaaaat  
attgataactcttcaaatgtaacacgttagaagatcatgcttatgttatttacacgtcgc  
gggacaactggtaaccctaaaggacactaatccgcaccgaggtattgttgccttggtc  
catcaaatcattatgtaccattaaatgaagagacgacgattttgttatcaggaaactata  
gcctttgatgtgcacatttgaatatatgggtgcatttgcctaatgggtgaaagctgatt  
gttgcataaaaagaacatttatataatccaaatagcgttagaacaatttaataatgaaat  
cgtgttaatactatgtgtgttaacctcctcattatttaacagatttgctagtgaacgaata  
gaagatttggtatcgttaaagtatttatatttggtggagaagattgaatgctaaagtgg  
gtggatttgccttaatacaaaacccgaagcatcctcaaatatttaattggttatggaccaact  
gaaatacaacatttacaacgacgtataataacctaacaagttccaaatcgtattcct  
atttggtaaacccgattctgggtactcatgtttatatcatgcaagggcagcgtcgtgtggtc  
gttgcattctcgtgggaatttatgtacaagtggttgggttagctgcaggttatttaaat  
cagccagaatttgacagcagataaatttatcaagattcaaatataaatcagctgatgtat  
agaagtggtgatcgttcgtttgttaccgtaggcaacatagattatttatatcgaaaag  
gcaaaacaagttaaagattcgaggtttaggtatgagttgctagaggttgagcatgcgtc  
gagcgtatacaaggttatataaaagcagttgttatgttcaaaatcatgatcaagatcag  
tatatcgttgcctattatgaagcgtatgcatacattatcacataataagatttaatacaca  
ttacgtatgaccttaccggagtagatgataccagtttaatttcatgcatatttgagcaaat  
cctattacttaattgggaatttagataagaagcattgctatcatcaggtatgtcgtat  
acggatgcctatgtagcaccgagtagatgatacgaacacttgctatgcaaaatttttgca  
gatattttcatgtgtaacagtaggtatttcatgataatttcttgaattaggtggccat  
tcattaaaagcaacgttagtggtgaatcggatagagggcatcactgggaaacgattacaa  
atttggtgatttatcaaaaagccaaactgtatttgaactagcacaagcgtattgctaaagtt  
caagaacaaaactatgaagtgattccagaacattatgttaaagatttatgtgctgagc  
ctgcacaaaagcgtatgtatttatatgggaaatcaaacataaagatcaggtgtataac  
gtacctttttatggcgttatcatcagaacttaattgtagctcaattggcacaagcagtg  
cagcgtttgatagcgcgacatgagattttacgcaacacataattgttgtgatgatgag  
gttcgacaacgtatttgggcagatgttgagttgactttgaagaagtttaacacgcatttt  
acggtagaacaagaaatcatgcgcaattttagcaccttttaatttggaaaagcgaagt  
caaatagagtgagatgataagagtccttcatgcatcctctttatagatagcgcac  
catataacttaagcgtatgagtaataatacaatgaatgaatgatcttaacgcactttat  
caacataaattattgttaccacttaattgcaatataaagactatagtgagtggtatgc  
catcgtgatagcgaacatagacaattatgggttatctcaattcaaaagtagaagtagct  
attttaagcttaccgacagactatgttagacaaatataaaacgacaaatggagcaatg  
atgtcatttacaatgaatcaacaaatgagacagctacttcaaaagtagtagaaaagcat  
caaatgatttattatgttctttatgagtggtgtcatgacgttgttaagtagatagct  
cgaaaagatgatgttgtgtcgttagtgatgagtgccgtatgcataaaaggcacggag  
caaatgctaggcatgtttgttaatacgttgggtatagagggcaccgctacctgtataaa  
atgtggacacagtttttacaagaggttaaggaatgagtttggaggcatcagagcatcaa  
gaatacccatcgaatgtttagtaaatgacttagatcaatcacatgatgcctcagcgaat  
ccattatttgatgtcatgttagtactacaaaacaatgaaacgaatcatgctcattttggg  
catagtaaattaacacacattcaacccaaatcagtgacggcgaatttgatttatctttc  
atcattgaagaagatcgcgatgactatacaatcaatcagagtataataccgatttatat  
cactcagaacagttcgtcacatgggttaacatgtatgattatgatttatattttg  
aagcatcaagatacactacaaatttggatatacaaaacggcagggaggaacttctaaat  
tgggtcaatacgcagtttaacgatcgaatgcttaattgtccgggaaataaattctatcata  
agttaactttaatgaagttgtctcagcagaaggttaacatgttgcgttagtcatgaatgat  
ttgcaaatgacgtatgaaacattacgcaactatgtggatgcccatttgcgcacatgctccta  
tcaaatgggtgggcaatgggtcaacgggttgccttgtttacagaacgtagttttgaaatg  
atttgcggcagatttggcgacagttaaagtaggtgcatttatatacctatcgatttgat  
tttccgaataaacgacaaaggtgcaatttggaggatgctaaagtaactgcagtcagttct  
tacggcgttgaattgaaacgacattaccagtcattcaattggaataatgctaaaggcttt  
gttgaatacaaggaataatgaacaaatgatgatttatacggcaatcaacttgaacacaca  
gcgatgttagataatgagatgtatgctatttacacatctggtacgacgggatgcttaaa  
ggggttgcatacgcacaacgaatttgttgaatttagtgcatgcatgggtcaactgaattg  
caattagggcagacattgaagtatttttgcaacatgcaaatattgttttgatgcatcagtt  
atggagatttatgtgttgggttaaatgggtcacaacgttggattccagatagagaggaa  
cgtgttaataccagaacagttacaacaactcatttaataagcatcgtgtgacgggttgcgtc  
attccggttacagatgtgttagtggtaagacttttatattgaaaagttgattacagggc  
gggggtaactagtcaggtatcctttgttaataatattgagaagcatgttggcagctatttc  
aatgctcatggaccatctgagtcacagtcacatcgtattgggtcacatcattgtggt  
gatttgatcctgagacgattccaattggcaaaccttatcacaatccaagtgattatt  
atgctagattgtttgttatgcgggtattgttatgccagggaggtgtgttatgcaaggtgat  
agtttagcgataggaataatatacgtccagaatgaatggctgataaattggcaaaataat  
ccatttgaaggaaggtgttatcatagtggtgatttagcacgttatcacatcgtatggt  
caaatgaatttttaggaagaatagataaacaagtgaaagttaacgggtacggtattgaa  
cttgatgaattgaaatgcaatattagctatcgtggttatctgatgtgttgaaca

gtaagtcactttgatacgcatgatataattgaatgcttattatgtcggagagcaacaagt  
gaacaggatttgaagcaatatttaaatgatcagctgcctaagtatatgattcctaagact  
ataacgcataatcgattgtatgccatttaaccacgaatgacaaggtggatactacgcgtttg  
ccaaatccatcacctatacaacagttctaataaagtgtatagcgaacctctaataaagt  
gagcagacatttgttgatgtatttggagaggtattgaaacaaaatgatgtcgggtgtgac  
gatgattttcttgaacttgggtgtaactcatttagaggcgatgttagttgtctcgcattta  
aaacgatttggccatcatatttcaatgcagacattataccaatataaaacccgtgcgacag  
attgttaattatatgtaccaaaatcaacaatcattagttgcattaccggataatctttcg  
gaattacaaaagattgttatgtctcgttataaacttgggtattttagaggatagtcctaagt  
catcgcacctctaggaatacactattgactggcgcgacaggttttttaggtgcttatctg  
attgaagtactacaaggatacagtcacgcatttattgtttcatacgtgctgataatgag  
gaaatagcatggtataagttgatgacgaatttaaatgattattttcagaagagacggtt  
gaaataatgttatcaaacattgaagtcattgttgggtatttgcagtgatggatgatgtt  
gttttaccagaaaacatggatacagattattcatgcaggtgctcgtacagatcactttggt  
gatgatgatgaatttgaaaaagtaaatgttcaaggtaactgttgatgtcatcactttggca  
caacaacatcatgcaagggttaatatatgtgtctacgataaggttgggaacttattttgat  
atagacacagaagatgtgacattttcagaagcggatgtctataaagggcaactactaaca  
tcaccatatacagggagcaaattttatagtgaaattaaaagtattagaagctgtaataat  
ggcttagatggtcggattgtacgtgttggtaatttgacgaatccttacaatggaagatgg  
catatgagaaaataaagactaacggtttttcaatggtaaatgaatgatttgttacaactg  
gattgtatcgggttagcattggctgaaatgcctgtagattttcttttgggtacgact  
gcaagacaaattgtcgcatttagcacaggtcaacacaccacaaatcatttaccatgtgcta  
tcacctaataaaatgcgggtgaaatctttgttagaatgcgttaagcgcaagaaattgaa  
ctcgtcagcgatgaatcatttaataaattttacagaaacaagacatgtacgaaacgatt  
ggattaactagtggtgaccgtgaacaacaactagcaatgatagatacaacattaacatta  
aaaataatgaatcacatcagtgaaaaatggccaacgataactaacaattggctgtatcat  
tgggcacaatatatacaaaacaatatcaataag

210.	<p>atgaccaaagaacaacaacttgcagaacgaattattgtcagtaggtggtatggataat  atagatagtgatgaactgtatgacacgtgtgctattaaagtattagatgagaataaa  gtagatgaccaagaactaaggcatattgatggtgtcatgggtgttatcacagatgaacgc  attcaagtgtgtgttgacactggtacagtcataaagtggtcaatcatatggcggaatt  agtgtgtttaaactaggtgacccaataccacacacatcaaatgatagtgaaaaaatggac  tataaatcatatgcagctgataaagcaaggcgaataaggaagcgataaagcaaaaaca  aagaatggttaagtgaataaagtattgaaatcaattgccaatctcttataccgttgatt  cctgcatttatggagctggattaattggtggtattgcagcagtagtgaacttaattg  gtggcaggctatatttcaggtgcttggtattacgcaacttataacagatttaattgtcatt  aaagcagggtatttagcatatttagctattttcactggttataatgcggctaaagaattt  ggtgcgacacaggacttgggtggcgtgattggtgttacaacgttatttaacgggtattgct  ggtaaaaaatttttaagaatgtcttctactggagaaccattgcaacctggacaagggtggg  attattggcggtatttttgcggttggattttaagtattgtcgaaaagagattacataaa  attgtgccaaaatgcgattgataattattgtaacgcgactattgcattgttgattgtagga  ctatttaactatctttatctttatgccatttagcagggtttgtttcagacagtttagtttca  gtagtttaacgggaatttagtattggtggtgctatttagtggatttatcattggtgcaagc  ttcctaccgttagttatgttagggcttcatcatatttttaccgcaattcatatagaaatg  attaaccaattcagggtgctacttacttattgccaattgcagcgatggctggtgctggaca  gtagggtggcgcatagcacttgggtgaagtgttaacgcaacacacattacgttaact  ttaaaagggtgcatgtccaggtggtttcttaggtatcggaagacatttaattggtgtg  actttgccattaggtgcagcctttcttaactgcttattggtggtggtattggtggcgct  gtaattaggtggaattggacatattggtgccaagcaataggcccaaggtggtgtcacta  ttaccatttaactcagataaatatgtatttaggttatattgcaggattacttgcgtgctat  gctggtggattcgtttgtacatattttattggaacgcaaaaggcgatgcgacagacagat  ttggtgggtgat</p>
211.	<p>atgtctaaaaattttaaattgtatcacgttagccgtggttaattttaaactgca  tgtggccctaatcgttcgaaagaagatttgataaagcatgaaataagataattctaaa  gacaagcctaaccaacttacgatgtgggtggatggcgacaagaatggcggtttataaa  aaaattacgggatcaatataactaaaaaactggcatcaaaagtaagcttgaataattggt  caaaatgatcaactagaaaaatttgcgtagacgctcctgcaggaaaagggtccagatct  ttttcttagcatgataaataactggaagtgcttctacaaggcttagctgctgaaatc  aaattatcaaaagatgagttgaaagggttcaataagcaagcacttaaacgcatgaattat  gacaataagcaactagcattgccaagctatcgttgaacaacccgactttttataataaa  aaattagtgtaaaaatgcaccgcaaacgttagaagaagtgaagctaatgctgcaaaacta  actgatgtaaaaagaacaataacggtatgttatttgatgtcaaaaatttctattttat  tatccgttttttctcggaatgatgattatatttcaagaaaaatggcagtgaaatgat  attcatcagctaggactaaattcaaaacatgtcgtcaagaatgctgaacgattacaaaaa  tggtacgcaaaagggtatcttcttaaggcagcaacacatgattgcatgattggtctttt  aaagaaggaaaaagtaggacaatttgcactggaccgtggaacatttaataatacaagaa  acgtttggttaagatttaggagtaacaacattacctacagatgggtggcaaacctatgaaa  ccattctagggtgacgtggttggattttatctgaatagtaaaacataagttattgggt  aaagatttaattgctgtatctactagtaagatacattacaaaaatacagatgaaatg  agcgaattactggaaggtgttgacgtgaaatcatctaataccttaaaagtgtttgaa  aagcaagcagctcatgctgaaccgatgcctaatattcctgaaatgcgacaagttgggaa  ccgatgggcaatgcaagcatatttattcaaatggtgaagaatccttaaacagcggttagat  gaggcgcaagatgataaacgcaaaatattaagattcttcatccatcaaaaaatgataag  aaaggagat</p>
212.	<p>gtgaaagcattgaaattatattggcggtggaagatttacggtatgaggataatgaaaagcca  gtcattgaaagtgcgaatgacgttattttaagtagcagcgactggcatatgtggttca  gacacgtcacgatacaaaaaaatggggccatcacattaaaggatagccatttggctcatgaa  ttttcaggtgtagtagatgccattggaagtgtgttacgcatgttaattggtggcgacaaa  gtgacaggtgtccagcaataccttgttatcaatgcgagattgttttaaaagggtgaatat  gcacgatgtgaaagtatttctgctattggctcatatgaacctggatcgttcgcggaatat  gtcaaatgtccagcgcaaaatgttttaagggttccagacaattgttattacattgaagca  gcaatggttgagccatcagccgttgttgcgcatgggttttataaatcgaatatacaacct  ggtatgactgttgcagtaattgggtgtggcagtaggtttgttagctattcaatgggca  cgaattattggtgctgcacatatcatcgtatagatatagatgcgcataaaactagatt  gcaacatcattggcgacacatacaaatcaattcaaaagaagaaaaatttggagaaattc  atcgaaaatcattacgccaatcaaatcgatttagctatagaatcatcaggtgtcaagtt  acgattggtcaaatattgacgctacctaataaaagggtggcgaggtggtattactcggaa  ccatagtagtatgtagattgacggttctatttgaaaaaattctgctaacgagttg  acagtagtgggtcttggaaactgtttgtccagtaatttccgggcaagagtgagcgga  acctacatttatagagacgaaagataattatgtaaaagcctattatttctcattttta  ccgttagaaaaaggccggagacatttgataaattagtttaacaagaagaacgatttgat  aaagtcaggtttacgatttat</p>
213.	<p>atgcaagcattacaacatttaattttaagagctaccagtaagaacagtagaattgaa  aacgaaccttattttaggaaaaagatttgcgtgagattttaggatatgcaagatcagac  aatgccattagaatacatgttgatagcgaggacaagctgacgcaccaatttagtgcacatca  ggctcaaaacagaaatgatcattatcaacgaatcaggattatcacagtctaattctcgat  gcttctaaacaagaagcaaaaacgaaaaatcagagaacccgctcggaattcaaacgatgg  gtaacatcagatgctcctaccagctattcgcaaacacgggtatacgcacacagacaatgta  attgaacaaacattaaagatccagactacatcattacagtggtgactgagataagaaa  gaaaagagcaaaacttacttttaacaagaagaatcggaagactaaaaccacaaagcagac  tatgtagatgaaattttaaagtaactggcacattagccacaactcaaatcgcgcgagac  tacggttatatcagcacaaaagttaaacaaactactacacgaagctagactacaacgaaaa  gtaaataaacagtggtgcttactcagaacacatgggcaagagttacacagaatcagac  actatagcaattgtacgctctgacggttagagaagacacagttttacaactagatggaca  caaaaggcgagattgaaataacatgaaatcatgactgaattcgggttatgagctaaattta  gggggagcg</p>
214.	<p>atgaaattaaaatcattagcagtggttatcaatgtcagcggtggtgcttactgcatgtggc  aatgatactccaaaagatgaaacaaaatcaacagagtcataactaatcaagacactaat  acaacaaaagatgttattgctttaaaagatgttaaaacagccagaaagatgctgtgaaa  aaagctgaagaaaacttacaagaagccaaaagttgaagggaatttcaattgaaaattctaat  ggtgaaatgggcttataaagtgcgcaacaaaatctggtgaagagtcagaagttactgtt  gctgataaaaaataaaaagtgtattacaaaaagactgaaaaagaagatacaaatgaatgaa  aatgataactttaaatatagcgatgctatagattacaaaaagccattaaagaaggacaa  aaagaatttgatggtgatattaaagaatggtcacttgaagaagatgtaggcaaacctgtt  tacaatctgatttgaaaaaaggttaataaaaaacagaagttactgttgatgctaagaac  ggtaaagtattaaagagtgagcaagatcac</p>

215.	atgaaaaatgaaaaatattgcaaaaaataagtttatttaggaatatttagcaacaggtgta aacactacacggaacacaggttcacgacgaaagaaacatttgaataagtgaaaaat agcaaaaaattaaagcttattataatcaaccttagtattgaataaaaaatgtgacaggt tatatcagtttcatccaacaggtattaaatttatgaatatcatagatggaattctgtt aataatattgcttatttggcaagataagcaacattatcatcaggggtgtacatcgta cttaatatattttacgtaataagagatttgaaggtgcaagactctatttggg ggatcacgagtgcaaacgataaagctgtcgacctaatagcagaagcaaggtattaaa gaagatcatactggtgaatatgattatgactttttccatttaaaatagataaagaagcg atgtcattgaaagagattgatttttaattaagaaaataccttattgataattatggtctt tacggtgaaatgagtagcaggaataattacagtcacaaagaataactatggaaagtataca tttgaattggataaaaagttacaagaagacggtatgtccgatgttatcaatgtcacagat attgatagaattgaaatcaaagttataaaagca
216.	mrktktivctigpaseseemieklinagmvarlnfshgsheehkgriditirkvakrldki vailldtkgpeirthnmkdgielergnevivsmnevegtpkfsvtyenlindvqvggy illddgilelqvkdihakkevkcilnsgelknkkgvnlpgvrsvlpgitekdaedirf gikenvdffiaasfvrrpsdvleireileeqkanisvfpkienegedinailevsdglm vargdmngveippekvpmvqkdliirgcnklgkpvitattqmlidsmqrnpratreaesdvana iydgttdavmlsgetaaglypeavktnriavsaeeaaqdykllsdrtklvetslvnaig isvathalnlnvkaivaatesgstartiskyrphsdiaavtpeetarqcsivwgvppv kkrkstallnnavatavetgrvsgndliiitagtvtgetgttnmmkhlvgdeiangq gtgrsvvgttlvaetvkdlegkdlsdkvivtinsidetfvyvekalgiliteengitssps avglekgiptvvgvekavknisnnmlvtidaaagkifegyanvl
217.	mqfdnidsalmalkngepiiivvddenrenegdlvavtewmndntinfmakearglicapv skdiagrldlvqmvddnsdiftgtqftvsidhvdtttgisayerltakklidpsseakdf nrpghlfpilvaqdkgvlarngheteaavdlakltgkpagviceimddgtmakgqdlqkf kekghlkmittidlierykkleleiefkavkmpdtfgtdfmygfkatytddeevlvtkg airghenvrlhsactltdi fhsgrcdcgaglessmkyninehggmliylpqegrgigllnk lrayeliieggydvtanlalgfdeidlrdyhaaqilkyfniehinlslmnpkfeqlkgy gidiaerievivpetvnhhdyemetkkikmghli
218.	mlmkklvkssvassiallllntvdaaghiptvsekKvddkitlykttatsdndklisq iltfnfikdksydkdtvlkaagninsgykcpnpkdyngsqfyggkynvsvssesndav nvdyapknqneefqvqgtlgygygddini snlsgglngsksfsetinykqesyrttid rktnhksigwgeahkimnngwgygrdsydytynel flggrgssnagqnlphthqmp llargnfnpefivslshkndtkkskikvtyqremdrytnqwrnlhwggnynknqntvtf tstyevdwgntvkligtidsketnpgv
219.	mkkkallplflgmvlflagcdyskpekrsgffyntfvdpmknvldwlgmnlldnyglai iilviriillplfmlsnyknshmrqkmkvakevekiqekvkrartgeekmaangelm qvykkydmpiksmnlgclplmliqlplimglyfvikdqlvdglfkyphflwfdlgrpdiwi ttiaglyfyfiqayvssktmpdegrgmymmmvispimiwi slssasalglwysvsaaf vvqthfaniyyekvakkevqpfieayerehnggsnkkgkntqgvsvskkkk
220.	mulfrqqksfirkfnvgifsaliatvtfistnpttasaaeqnqpagnpagnpadantqpn anagagantagpaapangqgpavqpanqggqanpaggaaqpnqpaggqgnqadpnaaq apngnatpanagqgnnqatpnnnatpanqtpanapaaqpaapvaanaqtdqpnasn tgegsinttltfddpaistdenrqdptvtvtdkvnyslinngkigfvnslrxdmfdk nmpqnyqakgnvaalgrvmandstdhgnfngisiktvnvkdpseliinfntmqtnskgqat nlvikdakmtelatvnavktgtahlfkvptdadrlldlqfipdntavadasrittnkdgy kyysfidnvglfsgshlyvknrdlapkatnnkeytintelnngnfgaslkadqfkyevt lpqgvtyvnnstlttfnpgnedstvlkmtvnydqanankvftsqgvtartgthtkevlf pdkslklsvkvnvanidtpknidfnekltyrtasdvinnagpevtltadpfsfavemnk dalqgyqasqvdnshyrtasieaynkllqgadtlnedanhvktanrasqadidglvtkl qaalngaaiaeldtkakekvtaaqgskvktqdevaalvtkinndknnaiieinkqta gvvttekdnglavleqdvitptvkvqakqdiiqavttrkqgikksnaslqdekdvandki gkietkaikdidaattnaqveaiktkaindingtptattakaaaleefdevvgaqidgap lmpdtneevaealerinaakvsgvkaieatttaqdlervkneelskienitdsttqtkmd aynevqaatarakamatvsnatneevaeadaavdaaqgqlhdiqvkskqevadtksk vldkinaigtqakvpaadtevenayntrkqelqnsnastteekqaayteltdtkkgeart nidaantnsdvtakdnisiaalnqvqaattkksdakaieiakaserktaieamndsttee qqaakdkvqdavvtanadidnaaanndvndaktneatiaaaitpdanvkpaakqaiadkv qaqetaidngngstteekaaakqgvqtektadaaiddaahnaeveaakkaakiaieaiq patttdknaekaiatkanerktaiagtqdi taeeiaaanadvdnavtqansnieaansqn dvdaqkttgensidqvtptvnnkatarneitailnnklqeiqatpdatdeekqaadaean tengkanaisaattnaqvdeakanaeaaainavtpkvkkaakdeidqlgatgtvinn dqnmatteekaaaiqlatavtdaknnitaatddngvqakdagknsiqstqpatavksna kndvdqavttqngaidnttgatteeaknaakdlvlkakekayqdlinaqgtndvtqikdga vadiqgtadttdkdvakdelatkanekqaliaqatadatteekeqanqgvdaqltqgmqn ienagqiddvntakdnaiqaidpiqastdvktnaraelitemgnkiteilnnnetneek gndigpvraayeeeglnninaatttgdvttakdtavqkvqqlhanpvkpagkkelldqaaa dkktqieqtgnasqgeindakqevdtelnqaktvndqssstneyvnavkegkakinavkt fseykkdalakiedaynakvneadnsnastseiaekqklaelkqtadqnvngatskdd ievqihndldndindytipgtkkesattdlyayadqknnisadntnatqdekqqaikqvvdq nvqtalesinnvgvndgvdvdaltqgkaaidaiqvdatvkvkanqaeievkaedtesidsq dqltaeektealamikqitdqakqgitdattaevekakaggleafdnigidstekqkai eeletaldgieagvnnadatteekeaftnailedilskatedisqdttnaieiatvksal eqlakgrinpevkknaleirevvnkqieiliknadadasakeiartdlgryfdrfadkl ktqtnaevaelqnvtipaieaivpqnndpandtnngidnndatansnanatpentggpvn settangkadastptpnnsdaatgetttatsatddandkppannsssvdastnspmdndv tskpevestnngttdkpvttednatpaesttnnnsttatnenaptgstaptastea assadskdnasvndskgaevnnsaesqstndkvagpksenkakaekdgdsstngsmves ttetlpsadi tepnvpsntskdkeesttnqtdagqlksetnvnsneadkspksadtevn kpstsasseakekmtstnlsqkddtatadtndtqksvgsaannkatqndganaspavtn gsnsanqdmnvtntddhqaaktksaqqgvknkakqqaaktlptdgmsnnddlyaelalga gmaflirrfktdkqgtee
221.	mkllksfvttalalgilstvgaalpsheasadsnngykemtvdgyhtvpytisvddgitalh rtyfifpenkvlygeidskvknelasqrgvttkeinnagtatytlitlndgnkvkvnllk nddaknsidpstikigilvkv
222.	maikkypkitngrrnmtslfdaeitkttpksllkplpkagrnnqgkltrvhggghkr qyrvidfkrnkdginaakvdsiqydpnrsanialvvyadgekryiapkglevvgqivesga eadikvgnalplgnipvgtvvhnlielkpgkqgiarsagasaqlgkegyvliirsrge vrmilstratigvgvnlqhelvngkagrsrwwgiprtvrgsvmnpndhphgggegrap igrpspmspwgkptlgkkttrrgkksdklrvgrkklk

223.	mlvntfnfpdnlillsliiaaipivlflilcivfkmkgiayaaaitlvvtlliaaipffklpv giasgavvegffgqiipigiyvmavilykitvesgqflitqdsitnisdqriqvllig fafnaflegaagfgvplaiacallltqlgfnplkaamlclvanaasgafgaigipvgvvet lklpgdvsvlgvsqsatltlaiinfiipflilfiidgfrgvketlpailvvsitytlttqg lltvfsgpeladiipplltmlalavfskfkqpkhiyrvnkdeiepakahsakavlhaws pfivltviwmiwsapffknlflpnaalsslvfkfnlpgtisevthkplvltlniiggtgt ailltiiiitilmskknvfkdagrlfgvtfkelwlpvlticfilaiskittygglasamgq giakagnvpvlspilgwivfmgtsvvnnsflapigasvaqgigtsgsilvsantvvg vaaklispqsiaiaataavkqvgkesellkmtlkysvcillicifiwtfilsl
224.	mlkmlkiltttslsvllaplanpllenakaandtedigkgsdieiikrtedktsnkwgvtq niqdfdvkdkkynkdalilkmggfissrttyynykktnhvkamrwpfqynigiktndkyv slinylpknkiestnvsqilgynignfgsapslgngsfnykslsytqqnyvseveqq nskswlgvkvansfatesgqksafdsdlfvgykphskdprdyfvpdselpplvqsgfnps fiatvshkgsddtsefeitygrnmadvthaikrsthygnsyldghrvhnafvnmrnytky evnwkttheikvkvgqn
225.	nkmmklvksavatsmallllsgtanaegkitpvsvkvdvdkvtlykttatadsdkfkisq iltfnfikdksydkdtlvkatgninsgfvkpnndydfsklywgakynvsiessqndsv nvvdypknqneefqvgntltgytfggdissnglsgglngntafsetinykqesyrtils rntnyknvgwgveahkimnngwpgygrdsfhptygnelflagrqsasayagqnfiaqhgm llsrnfnpeflsvlshrqdgakkskitvtyqremdlyqirwngfywaganyknfkrtrf kstyeidwenhkvklldtketennk
226.	mnremlylnrnsdieagagnhsqvyvdaltealtahandfvgplkpylrqdpenghiadr iampshiggehaigskiwgskhdnpskrnmerasgvilndpetnypiavmeasliis mrtaavsvlaakhlakgfkdlitigcgligdkqlqsmlegfdhierfvfydqfseacar fvdrrwqqzpeinfiatenakeavsngevvitctvtdqpyieydwlgkgaafisnismdv hkevfiakdkvvvdwsqcnrekktinqlvlegkfskealhaelgqlvtgdipgreddde iillnmpgmmaiedissayflyqgaqqnigtltlnly
227.	nkkmivi fgt rpeaikmaplvkeidhngnfeanivi taqhrdmlsdvlsi fdiqadhdln imqdqqltagltanalakldsiineegpdmilvhgdtttt fvgslaa fhyqipvgvheag lrthqkyspfpeelnrvmvsniaelnfaptviaaknli fenkdkerifitgntvidalst tvqmdfvtiinkhkgkvvll tahrrenigepmhqi fkaavrldadeykdvvfiypmhrn pkvraiaekylsgrnrielielpdaiefhnftngsyvlvt dsggiqueaptfgkpvvlr nhterpegveagtsrvigt dnyvrmvkliddeayqrmsqannpygdgqasrricea ieyyfglrltdkdpdefvplrhk
228.	mimgnlrfqgeyfriyknntestthrnaywvklaknveatkmmyalstivqghasirhff dvttddnlmtlilheflpfieikqvpssanydleaffkqelstyhfnspilfkvlfgfa daayilldhfvisfddsquidi flddlcnayrgntvinntqrhahinrmdkdqdashla ldsnyfrlennsdihidsyfpikhpfeqalyqtyliddmtsidsmaslavsvylanhsq qhdvltlgihvpslplndlhgnivplltitidakdvqgrfttdfnkcvlqnmssqlcakss sletlthqyspfeelnrvmvsniaelnfaptviaaknli fenkdkerifitgntvidalst tvqmdfvtiinkhkgkvvll tahrrenigepmhqi fkaavrldadeykdvvfiypmhrn pkvraiaekylsgrnrielielpdaiefhnftngsyvlvt dsggiqueaptfgkpvvlr nhterpegveagtsrvigt dnyvrmvkliddeayqrmsqannpygdgqasrricea ieyyfglrltdkdpdefvplrhk
229.	mtkeqqlaerliaavggmdnidsvmmcmtrvrikvldenkvddqelrhidvgmviher iqvvgpgtgnkvahmaelsvgklgdpiphhhndsekmdyksyaadkakankeahkakq kngklnkvlksianifiplipafigagliggiaavlsnlmavagysgawitqlitvfnvi kdgmlaylaifftinaakefgatpglgvggttltitgiagknilmvftgeplpggggg iigvifavwilsivekrhkiivpnaidiiivtptiallivglitfi fmpagfvsdls vvgiisigvgfsgfiigasflplvmlglhhi ftpihiemingsgatylpliaamagagq vgaalalwrcrnttltlntlkgalpvgflgigepliygvtlplgrpftaciggigga viggighigakaigpsgvsilplisdnmlygiaglaayaggfvctylfgttkamrqt llgd



230.	mskilkcittlavvmlivtacgpnrskedidkalnkdnskdkpnqltmwvdgdkqmafyk kiddqytkktgikvklvnigqndqlenisidapagkppdi fflahdntgsaylqglaael klskdelkgfknqalkamnydnkqlalpaivettalfynkklvknagptleeevnaaakl tdskkkkygmldfaknfyfnyplfgnddyifkknngseydihqglglnskhvvknaerlqk wydkgylpkaathdvmligfkegkvqgfvtpwvniyqetfgkdlgvttlptdggkpmk pflgvrwylseyshkywakdlmlyitskdtlqkytdemseitgrvdkssnplkvfe kqarhaempnipemrqvwepmgnasifisngknkpkaldeadntdntqnikilhpsqndk kgd
231.	vkalklygvdelryednekpviesandviikvratgicgsdtsrykkmgpyikgmpfghe fsgvvdalgsdvthvngdkvtgcpaipcyqceyckgeyarceklfvigsyepgsfaey vklpaqnvikvpdndvdyieaamvepsavvahgfyksnlgpmgtvavmgcgsigllaiqwa rifgaahliaididahklidiatslgahqtinskeenlekfiyenhyangidlaieessgakv tiqgiltlpkkgevvllgipyddieidrvehfakilrneltvcsghwnclessnfpkgkewa tlhymtktdinvkpiishflplekppetfdklvknkerfdkvmftiy
232.	mqlqtnfnekelpvrtveienepfyvfgkdlaeilgyarsdnairnhvdsedklthqfsas gqmrnmliinesglyslifdaaskqskneki retarkfkrwvtsdvlpairkhgiyatdnv iegtlkdpdyiitvltteykekeqnlillqgeigekpkadyvdeilkstgtlattqiaad ygisaqlnklilhearlqrkvnkqvwlysehmgksytesdtiaivrsdgretdvltqrwt qkgrlkiheintefgyeanlga
233.	mklkslavlsmsavvltacgndtpkdetkstesntnqdtnttkdvialkdvktspedavk kaeetykgqklkgisfensngewaykvttqksgseesvlvadknkknkktekedtmne ndnfkysdaidykkaikegqkefdgdikewselekddgklvynidlkknkkgqvtdakn gkvkxseqdh
234.	mkmkniakisillgilatgvntttekpvhaekkipivisenskklkaynqpsieyknvtg yisfigpsikfmmiidgnsvmnialigkdkghyhtgvhrlnifvymedkrfegakysig gitsandkavdliaearvikedhtgeydydfpfdkdeamslkeidfklrkyliidnygl ygemstgkitvkkkygkytfeidkklqedrmsdvinvtidirieikvika
235.	Ttgaaaaaatattttaaaagtttttaatacaacgattttagcggttaattatcatcatcgcg Acattcagtaattctgcaaatgccgcagatagcggtactttgaattatgaggtttacaaa Tacaataccaatgacacgtcaatttgctaagtactattttaataaacccgcaaatgacatt Aagaaaaatggtaaatgttatgttcaataaactgtcaaccacagtcattggattactgga Atgagtatcgaaggacataaaagaaaatattattagtaaaaaactgccaagatgaacgc Actcttgaatttgaagtaagtaagttgaacggtaaaaatagatggaaaaaattgacgtttat Atcgatgaaaaagtaaatggaagccattcaaatatgaccatcattacaacattacatat Aaatttaatggaccaactgatgttagcaggtgctaagtcaccaggtaaaagatgataaaaat Tctgcttcaggtagtgcacaaaggatctgatggaacgactactggtcaaatgaatcta Agttcgaataaagacaaaagtagaaaatccacaaaatgctggtacacctgcataata Tatacaataaccagttgcacaccttagcattattaatcgcaatcacattgtttgttagaaaa aaatctaaaggcaatgtggaa
236.	atgacaaaacattattttaaacagtaagtatcaatcagaacaacgttcacagctatgaaa aagattacaattgggtacagcatctatcatttttaggttcccttgatatacataggcgagac agccaacaagtcaatgcggcaacagaagctacgaacgcacctaataatcaaagcacacaa gtttctcaagcaacatcacacaacaaatttaatttccaagtgcaaaaagatgggtctctcagag aagtcacacatggatgactatagcaacacccctggtaaaagtaattaaaacaaaataataaa tattatttccaacacgtgttaaaccaatgcacattctggaagaatacaaaattttacaat gcaacaatcaagaattagcaacaactgttgtaacgataataaaaaagcggaatactaga acaatcaatgttgagttgaacctggatataagagcttaactactaaagtacatatgttc gtgccacaaatataattacaatcatagataactacgcatttggaatttgaaaaagcaatt cctacattagctgacgcagcaaaaacaaacaatgttaaacgggttcaacaaaacacagct caacctaaaacacctaactgagcaaaactaaaccagttcaacctaaagttgaaaaagttaaa cctactgtaactacaacaagcaagttgaagacaatcactctactaaagttgtaagtact gacacaacaaaagatcaaaactaaaacacaaactgctcatacagttaaaacagcacaaaact gctcaagaacaaaaataaagttcaaacacctgttaagatgttgcaacagcgaaatctgaa agcaacaatcaagctgtaagtgataataataacacaaaactaaacaaagttacaaaacat aacgaaaacgctaaacaagcatctaaagctaaagaattaccaaaaactgggttaacttca ttgtgataactttatttagcacagttgcttcgcaacacttgcccttttaggttcattatct ttattacttttcaaaagaaaagaatctaaa
237.	Lknilkvnttilalilililifsnanaadsgtlnyevykyntndtslandyfnkpaki Kknklyvgtvnhshwtgmsieghkeniiskntakdertsefevsklngkidgidvy Idekvngkpfkydhynitykfngptdvaganapgkddksasgsdkgsgdgtttgqsesn ssnkdkvenpqtnagtpaviytipvaslalliaitlfrkkskgnve
238.	mtkhylnskyqsegrssamkkitmtasiilgslvyigadsqqvnaateatnapnngstg vsqatsqpinfgvqkdgssekshmdymqhpqkvikqnnkyfqtvlmnasfwkeykfyn annqelattvndnkadtrtinavavepykslttkvhiivvpqinynhrytthlefeikai ptladaakpnnvpqpkpapkptteqtkpvqpkvekvkptvttttskvednhstkvst dttkdqtkgtahvtktagtaqeqnkvqtpvkdvataksennqavsdnksqqtinkvtkh netpkqaskakelpktgtltsvndfistvatatlaligslsililfrkesk

239. atgacaaagaaagaaaggattataaaaaaagctcttgagcaacaaaaacacgggtaaaa  
 atatacaagtcaggaaaaagctgggtaaaaagcaagtattaatgaaatagaattgttataaa  
 acaatggggctaccatttttaagtaaaaacgaaatcaagaaaaatgtgactgaaaagacg  
 aaaggttcataaattaaaaaaagtgacgtataaaacacacagccctagttgggtggagcattt  
 acatttaatatgttgaataatcatcaagcattttgctgcctcagaaacaccaaaccacctct  
 gaatttcatcctaatagtgagacagtagccaatcaaaattcaactacgatttaagaactca  
 caaaaagaaacagtcattctacaagtttggaatctaacattctaatagtcacaaatag  
 caaatgtcttcagaagttacaaatcacagctcaatccagtgaaaaagctggaattagtcac  
 caaagtagtgaaaacatcaaatcaatctcaagttaaatcacatagctccacagaccat  
 gttagagagtcacactatttaacaatgataatctgcacaaacagatcaaaaataagttctcg  
 aatgttaaccttaagtcacacacatcaaacacgctcatcctcagaaaaagaacattagctcc  
 aatttaaccagctcaatcgaacaaaagcaacagctcatttagcgactagtgaaagcaegt  
 actagtacaaatcaaatatctaatctgacatcaacatctacttcgaatcaatcgagtcct  
 acttctcttgcaaatttaagaacatttagtagatttactgttttgaatagcagtgagca  
 cgcgaacacacatcaacgacacacattcaagttctgacatctaatctgttggtggaac  
 aaagtaactttaaagtaacatagaaatctctggaatctgagcagtgatgactcaaaaaca  
 ggtattgtctaccttaacgcccagcagcatatagtcaaaaggggtccatctttaaact  
 cgattagattcaaaccttagcttccgttttataggtaaagtttaaccttggtaatatagat  
 gaaggttattctctctgagtggtgtagcaggtggagatggcattggctttgcattttacca  
 ggccctttaggacagataggttaagaaggggtgcccgttggaataggcgggttgaataat  
 gcccttgggttttaaattggatagctatcatacacatcaactcctagatctgagctcaaa  
 gcaaaagcagatccacgttaattgttggtggtggtggtcttttggtgccttcgtaagtaca  
 gatagaattggatggctaccactgaggaatcaactgcccgttaaattaaattgacacact  
 actgacaattcattccaaagattttgtcattgactataatgggtgatacaaaagtgatgaca  
 gtagcagctacgtggcaaaactttacgagaaatcttacagattggataaaaaacagtggtg  
 gtagcagcttcttctctatctatgactgcctcaactgggtggcgcaaaaatttacaacaa  
 gttcaatttggaaacttcaggtatcacagaatcagctgttgctaaagtacgctatgtagat  
 gcaaatctggtaaggtattatcccgcttaaaacattgcaggtgaagttgacgggact  
 gtaaatatagataaacaattgaacaattttaaatttaggttacagttatgtggggaca  
 gatgctttaaagcaccacaaattatacagaaacgtcaggtacacctacacttaaattaact  
 aactcaagccaaacgggtgatttataaattcaaatggttcaaggtcctcaaattaggtgtt  
 gatagtcacactagagaagttggaagaccatttaattcaaatataactacacactgac  
 aatagtaaaagcgttataactacaactgtgacaggtctaccttcagggttatctttgat  
 caaacgactaatacaattattggcagcccaagtgaaagtaggaactacaactgtgacagtt  
 aatactactgagctactgggaacgttaacatcaagcaattacaataacgattcaagat  
 acaatcagccctgttgtaaatgtgacgccaagtcgaagtcagaggttttcacgcccatt  
 aatccaatcacgataactgctacagataatagtggaaggtggtaacgcatcacgtaact  
 ggaatgcccaaggaacttaaatttgatgcatctacgaattcaattgttggaactccaact  
 caaataggaacaaatataacacagattgagtcacaggtgagtggaataaaactacg  
 actaaatttaattgaagtaacgagaaatagcgaagtgactctacttccactagcata  
 gtaaataggtttcaacaaggtataagtaaatagtcacatcgtaagtgatagtgtaaaagcg  
 agtcaatcattatcaacaaaagaatcaacaagtaagagtcctctcaggttcgttaagtgcg  
 tcagcagtcgaatagtgcatcaataaaagcgagtggaatcagcaagcacaagtaagaagtt  
 tcagaatcagcgagtagctgcatgtctgtagcgcatcaataaaagcgagcgaatcagca  
 agtacaagtaagaagttatcagaatcagcgagtagctcaacgtctgtagcgcatcaata  
 aaagcaagcgaatcagcaagtaagaagttatcagaatcagcgagtagctcgatg  
 tctgtagcgcatcaataaaagcgagcgaatcagcgagtagcaagtaagaagttatcagaa  
 tcagcgagtagctgacgtctgtagcgcatcaacccaagcgaagcgaatcagcaagtaga  
 agtcaaaagttatcagaatcaacgagtagctgacgttcagatagtgcatcaacatcaacg  
 agtgagtagctcaacaagtgaaagtacatcggttaagttagctcgacaagtagcgagctt  
 tcagaatcgacaagtagcatcaacatccgacagtgctccacatcaacgagtgagagtgac  
 tcaaacagtagcaagtagctcattgagtgagtcgacaagcacaagtccttcagaatcaacg  
 agtagctcaacatcagatagtgctcaacgtcagcaagtgtagtgactccaatagcgca  
 agtagctcattaaagaaatcgacaagtagcaggtcttcagactcaacaagtagcatcgaca  
 tctgacagtgctgcaacatcaacgagcgagagcgactccgtagcgcaagtagcatcggtg  
 agtggtctcatcaagtagcaggtttcagattcaacaagcgctgcaacatcagaagtgca  
 tcaacgtcaacgagcacaagtagctcaaacagtagcaagtagctcatttaagtgaatcgaca  
 agtagcagcttttcagaatcaacgagtagctctacatccgacagtgatccacatcaatg  
 agtgaagcgactcaaatagtgccagcatatctttaaagtgagtcgacaagcacaagcgtt  
 tcagattcaacaagtagcatcgacatcagaagtgcatcaacgtcaacgagcgagagtgac  
 tccaatagcgcaagtagctcatttaagttagtcgacaagcacaagcgtttcagattcaaca  
 agcagatcgacatcagacagtgctgcaacatcaacgagcgttaagtgaattccaatagcgca  
 agtagctcattgagtgagtcgacaagcacaagcatctcagattcaacaagcagctcgaca  
 tcagacagtgctgcaacatcaacaagtgtagtgagtcagcagtagcaagtaagaagtt  
 tcagaatcagcgagtagctcgatgtctgtagcgcatctgcatcaacgagtgaaatcaaac  
 agtcaagtagctcatttaagtggctcgacaagtagcaggtctttcaggtcaacgagtagca  
 tcgatttcagaagtgctgcaacatcaacgagcgttaagttagctccaatagcgcaagtagc  
 tcatttaagtgaatcgacaagtagcaggtctttcagactcaacgagtagcatcgacatcagat  
 agtagctctgcatcaacaagtgagtagtagctcaaacagtagcaagcacaatccatgagtgaa  
 tcattaaagcacaagcgtttcagattcaacaagtagctcaacgtcagacagtgcatcaacg  
 tcaacaagtgtagtgactccaatagcgcaagtagctcatttaagtgaattcaacaagtaga  
 agcatttcagactcaacgagtgctgacatcagatagtgctgagtagtcagcaagcgag  
 agtgaatcaacaagtgaaagtacatcggttaagtgaatcaagtagcaagcgtttcagat  
 tcaacaagtagcatcgacatcagaagtgcatcaacgtcaacaagcgagagtgaaatcaaca  
 agtgaagtagcatcggttaagtgaatcatcaagtagcaagcgtttcagattcaacaagtaga  
 tcgacatcagaagtgcatcaacgtcaacaagcgagagtgaaatcaacaagtgaaagtagc  
 tcatttaagtggatcatcaagtagcaagcgtttcagattcaacaagtagcacaagtcagaa  
 agtgcatacaacgtcaacgagtgtagcgactcaaatagtagcaagtagcatttaagtga  
 tcgacaagtagcaggtctttcaaacatcaacaagtagctcaacatcagacagtgcatcaacg  
 tcaacgagtgtagcgactccaatagcgcaagtagcatcggttagtggtggtcatttaagcaca  
 aacgtttcagattcaacaagcacaatcgacatcagacagtgcttcaacgtcaacaagcgag  
 agtagctgaacagtagcgaagcacaatcgctaaagtgagtagcatttaagtcaacgatttcagac  
 tcaacgagtagctcgacatcagacagtgctccacatccacatcagaagtgcatccaca  
 tcaacgagtgtagtgagtagcagacagtgaaagtagcatccatgagtgtagtgactcgaat  
 agtagcaagtagcatcttagtgtagctcgacaagtagcagcgtttcagactcaacaagaaca  
 tcaacatccgtagtgcatctacatcaaaagtagtgaagtagtcaaacagcgccagtagaca  
 tcggtaagtggttcaacaagtagcaagcatttcagattcatcaagcagctccacatcaatg  
 agtagcttgaaacttctacttctcaatctcctataaattagtgaaagtagtaatttatgggt  
 gatagctgtgctgaagatacaatctgtgactcaatcaaaaaatcagaatagcttaataaaa  
 actggaagaaatgatgatttacaagaacaaagaggttatactgattcagaacacacaaat  
 gaacacaaagtaaatcaagctgataatcactcaaacacactcgatttacttcatcaaat  
 cgtttacaagtagaagtcgttaaacacccgactaaaggagaagtaggagttgtaagcaac  
 ggttttatagtagcagtagcaatagatttggtatcttccggttggcaaaaaatctaga

aaagacgagtagtagcaagtaggttagtaaa

240.	atgaaaaaacagttatcgcttctacattagcagtatctttaggaattgcaggttacggt tcatcaggacatgaagcacacgcttcagaaactacaaacggttgataaagcacacttagta gatttagcacacaataatcctgaagaattaaatgctaaaccagttcaagctgggtgcttac gatattcatttcgttagacaattggataccaatacaacttcacttcaaatggttctgaatgg tcatggagctacgctgtagctgggtcagatgctgattacacagaatcatcatcaaaccaa gaagtgaagtgaataacacaaatctagtaacacaaatgtacaagctgtttcagctccaact tcttcagaagtcgtagctacagcacatcaactacttcatactcagcaccagccataaac tacagctctcacagtagttcagtaagattatcaaatggtaactgctgggttctgtaggt tcatatgctgctgctcaaatggctgcagctactgggtgtagtctgcttcaacatgggaacac atcattgctagagaatcaaatgggtcaattacatgcagctaatgcttcaggtgctgctgga ttatttcaaaactatgcccaggttgggggttcaactgggtcagtaaatgatcaaatcaatgcc gcttataaagcatataaagcacaaaggtttatctgcttgggggtatgt
241.	atgaataaaaaataaagtattgttaattggatcaacaaatgtagataaatttcttaattgtt aaaaggtttccaaaacccggtgagacattacatttaatacagctcaaaaggagtttgggt gggggcaaggagccaaatcaagccatagcagctagtagattagcagcagatacaacattt atcagtaaaagtgtgtaaaagatggcaatgccaaactttatatgggaagatttcaaaaaagca gggtattcatcacacaataatttttaacttcagaaagtgaagaaactgggcaagcattttatc actgttgatgaagcaggacaaaatcagatttctgtttacgggtgggtgcgaatatgacatta agtgcacactgtagttgagatgagtggtgtagtcttattgggtgcagactttggtttagcgt cagcttgaagttccatttgaggcgatagaacaaagcattttaaattgctcgttaaacaaaat atcactactgtattaaatcctgcacggcaattgaattgcctaagtcacttttagagttta actgatataaattatccaaacgaaacggaagcagaatttatcaacaggtatttcaatcaat aatgaagtgatatagaagaacacagcaacataatttctcgatttaggtatattctgcagta ttaattactttaggggagcaagggcagctattgtgcatacaagaacatacaaaaatgatt cctgcgtgttaagttaaaagcaatagatacagcagcagcagcagagatacatttataggtgct tttttaagtgagttaaaataaagatttagcaatttagaatcggctattcgcacttgcaaat caagcgtcgtcttaacgggtacaacgaaaggagcacaagcttctataccacacgtaaa gaagttagggcagaatataat
242.	atggctctttaaataataagccaattacaaatggctcgtaaatgactacttttagat ttcgtgtaaatcaaaaaaacacacctgaaaagtcattattacaacgctaccgaaaaga gggggacgcaataaaccaaggtaaatgtactgttcgccatcatgggtgggacacaaacgt caataccggtgttatcgattttaaactgaacaaagatgggaatcatttgctaaagtgtattca attcaatatgatccaaacggttcagcaaacattgcattgctagtttatgctgtaggtgaa aaaagatatatcatcgacacctaaaggattacaagtaggtcaaaactgtcgaaggtggtgct gaggcagatatcaaaagtgtgtaattgctttaccattacaaaatatttccagttgggacagta attcataacatcgagttaaaacctggtaaaaggtggacaacttgctcgttctgctgggtgct agctctcaagttattaggttaaagaaggttaaatatgtattatcagattaaagatctgggtgaa gtacgtatgattttatctacatgtcgtgcaacaattgggtcaagttggcaacttacaacat gaattagtaaatgttgtaaaagcaggacgctctagatggaaagcggttcgcccacgtgta cgtgggtctgtaattgaaccctaatgatcacccacacgggtgggtggaaggtcgtgctcca atcgggtagaccatctccaatgtcaccatggggtaaacctacgcttggttaagaaaactcgt cgtgggttaaaaaatcttctgcaaaacttatcgttcggtggacgttaagaaaaaa
243.	atgaagtcaaaattcacaaattctattatttacaattctttctacacagctattagttttg gtattattttataacaaaactcaatcccaatcatacatttcgactcactatttcaataat aaaataaaaaaacacagcaacactttttttacatggttatgggtgtagcgaacgctcagaa acggtttatggtcaaacagcggttaataaaaaatgtaaccaatgaggtgataaccgctaga gtgagtagtgaaggaaaagtatttttgataaaaaataaagtgaagatgcagcaaacct attgtcaaaagtagaattttaaagataataaaaaatggaaattttaaagaaaatgcttattgg attaaaagaagttctatcacaaactaaaaagtcatttgggaattcaacaatttaattttgta ggacattcaatggggaacatgtcatttgcgtttttacatgaaaaatattggggacgatcga catttgccacaacttaaaaaggaagttaatatagcgggagtttataacgggattttgaat atgaatgagaacggtgaatgaaattatcgttgataaacaggggaaaccaagtagaatgaat gccgcatatcggcaattgttatcactgcataagatttatgtggttaaggaaaatagaagtt ttaaataatctacggagatttagaagatgggtcacattcagatggagcgtgtgtcaaatagc tcttctcaatcgcttcaatatttactaagaggtagcactaagcttctatcaagaaatgaaa tttaaagggtgcaaaaggcacaacatagtcattacatgagaataaagatggtgcaaatgaa atcatacaattcttatgggaaact
244.	atgaagattggaattgtagccggagggtactttaattaaaaattgtacaagagcatgacaat cgtagattattacagaactgaatttaacaactaatatccaaaagtcatagattggcttaac aatgaagaaatcgaacattaaagcttacaggtggaatgctggagtaatagcagatcaa attcatcattccctgaaatattttagaggttcgatgcacataaaagggttagaatt ttattggatgaacaaggtcatcaaatgaacattacatttttgctaatgttaggtacaggt acttctttccactattttgtaggaaaagaccagcaacggtgttgagggtgtaggtaccgga ggcgggatgatacaaggtttaggctattttatgtccaatataacagattataaagaatta acgaatttagctcaaatggagatcgtgtagccattgatttaaagtaaaacatattttat aaagatctgaaccaccaattctcggagatttaacagcagcaaattttggaattgtatta catcacttagataatcagtttacatcagctaaacaaacttgccctcgtcaattggcgtcgtt gggtgaagttatacaactatggctattacattagcagctgaatataagactaagcagctt gtatatatcgggttcatttataaacaatcaattactacgtgaagttgtgaaaattac actgttctaaaggatttaaaccgctactatattgagaatggtgcttttccaggcgtctta ggagcactttacctc

245. atgacttttaataaccattttgcatatacatttgaggagagacctaaccacaaattatgg  
ctttgttaaacccagatggaactagaattgaaagaattgcagatttttcaaaacttgggtgga  
acattcaaatctactaatgtgaacactttacatttttgatttggcattgcaagatttttagt  
gaagatctactaagcaaatgaaagaataaagtagttgatttagtaaaaaataaactactta  
atttgattatagatatataacggatatagagatatctttgtaattgatgatataaaaaactc  
gtcaatgcttctgattttattacattaaatttagactcaagagcgtctgaattaaataag  
aaagctgcaaatgaaattgaattattaggttctactatccctcaaatgatgaacaaaatc  
ttatcagttttatgctccactatggaacttggacatgttgatggaaaaattatttgatgtt  
aaacgtgagtttaactgggttctaatacaactgttaacgctcttattgataaattttgttct  
ctttttgacgcagttgctatttataacaacatttaatagaacaaataagcttctatcataaa  
gacaattggttgactaatcgtggtttaagagttagggaataatgatttttaaaatcattt  
gaagatcaattttgtatcaaggatatcgttactagatttatccatttgggtcaaatgggt  
ttaacaattcaaatggttaacccagctgggtcttcttatttgaagacttctcttatttc  
atgtcaccattcaaacgtgataataacagaattgtattacaacatagtgatttatatgtct  
gatgaattatgtcagcgtttgttagattatcaagagttttatgcttagtaagaaggatcaa  
cgtggtgaatttatctaacaataatagtgcaatttctaagagcattcacagaagacttc  
agattaaatcaattagtgctacacttcaacgactaaatgagcgtgttgaattagttaaa  
cctaaatcagaatatatttgacttaggaacaaagggttaagaatttcaaaatcactgtacct  
aaatcatcatattttaaactgatattagaattgaggttagtttcaactagaattaaattc  
aataataaacagatgatatttcaaggtggtgaggtgttatatacaacttaaaactgggt  
aagtttaactgacgctactaagtttgagaacaaatagaataaccctcttgaaatatgaat  
gcaaacgctaatttaagagtggttatatactcgttcttctgaaggagattatgaagaagaa  
gatactaagcaatcgagaacaaatacaacttagaataataaaatttttagtaaaagat  
caagaaaaagtagtgcgttcaatcgaaagacgattaaagcctttgaagacaaaagca  
agtgttaatacgttcaatgaatgcaagaatttcttattctgaaaaactttataatgaacgt  
gagttatattgttttttgagtcgtgtttggacggaagaaatcatacagacgctcaagaatta  
tatgatgacgctgttaaaacaaatgaaggaaacaaagaaatcaatagaacgattacagtt  
gatttagtttaacttcaatcgttgccttaagataaagattgattgggataaattaaatgtt  
ggagataaagttgttttccaaaacaaatcttcaatactaaaaatcaaaagcctatatcact  
gaaatgcaatttagatttccaaactaatcaagtaaaatctactatttagtgattttttgat  
tacaacagatttagacacaaatcatcgttgaataattagcccaactaccttacttcttct  
caagttgatttccataaacaacaaattagagagcaaacgggaagattacagatatgact  
cgtcttatacgaaagtgagtgggacgcaaaataaaagcgtgtgagtggtggttaataaaca  
gttgatttggttccatggtgttaagtcatttcaaaagagaacctaacgaattcgtata  
atcatggttggtggcgtaattgtctagctcgtgataacgggtgaacattttaaactgggt  
attcacccagaaggtatcaatgctgaaatgcttactcgtaagatgagtcgttggtgaaact  
ttaacttttgaataagtgctggttacagtttaatttcgcaaaagatggagtttatgttaac  
tcaaaaaacttccatttagtttcaaatgagtgagaagaagactacttcgataaaattaaaa  
cgtgaaatgtctgaaacgctaaacaacaaacagacagaattgttagaagagtataaaaaa  
gaagtttcaaaaactatttctgaagctactgacgttagaataattgttgataatgcagca  
gatatttctcaagcagcttttgcgtgaggttatcacagatgttgaaaaacgttttgatt  
tctgaaacttctgctcaacttgaaaaagaaatagagaattcgaagataaaattaaactta  
gctttaaaccacccctacatcactgaggaagatactattgagttaaataattctatcgtt  
gaatatagctcaatgtatgaacacttgttatttctaatgaaggtgttagtgacaag  
atgatcaacactcaagagctgaagaaatatacacaataattataaacttcagagaagag  
atcaaaagacatcttatcattagtagaagaattattgaacgaactaaaaatgctcaacta  
caagctactttagaagaagcaaaagattatatacaacagagttcgtgacgattataaagat  
gaattaaagactttaaataattcattttaaactttaaattagtagacgttaagagtcatta  
caagataaatttttgacgctgctgaattagaagctattaaaacagttgtatttagtaact  
aaatcagaatatcaagatatatacaaatagatatcttcaatgctcgaataacagattta  
aaatcggaagtaaaattagatttaacaaaactcttataaaactttagatactagctttaat  
gactttgttaaatatattgacgaatgacaatggatagaattgcagatgagactgagaaa  
gttaattacaaaagaaatagatactttacaaaagaaacttatcagatttatgaaaaaa  
tatgataactgtattttgaaatattctaaaaagatttcaatgacgcagcagataaagtg  
ttagtgacttcacagctatttgctactgaattacaaaatgatttccaagatgttaagac  
aattggtggtgaattcaagcaaacactcttgagtcattttaaagatggttagtaactgag  
gcagaaaaagctcgactaagagtaacatttagatatgcttgatcgtgaagcagtggaatt  
gaagaacgataaaaaacttacttgcataaccaatataactaatgattttaaataactcgc  
ttaactgcttccagttctccttacttatcagttcattgctagtttaagaaaaagtaattgaa  
caaatattgctgacggaaggttgatgaagtgaaaaaacattagctaaataattcactt  
aatacatacaacacaacattactgcttatttcaaaaacattcaagaagctctaaatata  
ttatcacaataatcatctcttctgatgtagcaagtaaaaaagttgaagaattcaatgggtga  
ataactacaattttctcagacgttgatacaatcaagaacaaagagatgggtgcagtaact  
acttattattatagcgtgtacctacattatcaacgatccagctaaaagttggacgact  
aatgattttaaagacttacatattaaagatatgtatttagacactaaactcgggttatgca  
tatactttactaaactcgtgactagttatttctggaacacacttactgaccaagttatt  
gttagctcattgaaacaagcaaaaatgcacaagacacagcggacaataaacgttagagtt  
ttgttaactcaacctattcctccttatgatcaaggagatatgtggactcaagggtcacaa  
ggagattattatgtctgtggaacttcgagagctactgggtcattcgttaagtagcagactgg  
gttaaagcgagcaaaatacactgacgatacagtagctaaacaggcagcaaaagatttagaa  
gattataaagtcaaaatgactaaagacttcaagattttaaagcaggtgtatctactttt  
aaaactgaaagtgttaaagatttcaagatggaattgttaactgaagctgagaaaaactaga  
tcacgtgttcaattagatatcttagatagagaagtcagatatcgaagaagatatataat  
agttacttttaacagtcgaatgcagatactcaagttaaaacttctatttctaacgcacgc  
tctacttataataactcttctactaagtttaagaaacactattcaaacogtgattgaagat  
ggaaaaagtaacgcctactgagaaaaactactgtaatacaactttaaacgcataataaat  
gcttttaacaggttattcagctgctatccaagaagcattaaatagcatgtcgaagtaatt  
gctcaaaaagagctactagtcagtaaatcaattcaatgaagttatcaaaaataataat  
acaaattattactgatattcaaaaacaagttgtggtgcaattgaaacttcttattacagt  
ggagtaccaacacttactaataatccccgcttcgtattggacaactgctagttaacgtgaa  
gctcattttaggtgatttatatttagacactgctactgggtgttgcattcgttcttataaa  
aaaggaacaaacttccctacttactatttggtctccaatttctgatcaaatatttacagac  
gcattgaatagagcaaaaacagctcaagacacgcggatggaaaaagaagagtttttgta  
aatcacctgttccaccatacagacactggtgacatgtggacgcaaggagctagtggtgac  
atcttagtttgtaaaacacctaagctaaaggtggtatttactcaataagcagactgggtga  
aaagctagtagtaagatatcagatgatacagtagcaaacagtgctgttcaacaattaaatgaa  
tacaacgcactaaatacttgaatcgcagacctaagagaaaaactagtgacttcgaa  
aaaacaggtgttaattgcatttgacgatagagtcatttagattttccagagcttctatctatt  
aaagggacaacttgccttacttaactcacgaaaaagatagattaaactagacaataacgaaaaat  
ataatcagaatttctaacttctgttgagcagaaaaaactaaattatctactgcattatca  
aatataaatacaagcttagtgatttaagtacaactattaatagtgcaattgttgataat  
aaaattgtgacgctgaaagtaaatctgttaacttcaaaatttgaaattgtataaagcttca  
gttaatgaatatcaaatcgttttgataatgctctaaactcaattatttagaagaatcgtc

tcttcccaagctaagatagattagatgaatggaaacgtacagaatttagtacagactca  
gacgggtattattgaaagagtagctgggtgctaagtttgactcaaaatggactgatacttgg  
agaaatcacagtttaaccagctattcaacaagtgagtaataacatatgggaagtgaaaac  
ctattacttaataagcgaaagtcgaagtgacgggtgctaataccacgactcactctttata  
agatactacctgcacgcccctttagaaacagggaacttatactttaaaagctagtggt  
ttaacaactgatgaaagacaaagtgacaaaatttagtggtttatccatactcccctaacgga  
gcaagagagacagtaaatattaaagacggtaaaattacttatacatttactgcacaaact  
gaaagtacacaatttcttatttataaagacgtgggtgggtcaatctgatgtagacttaaat  
gtaacaatcgagaaggctatttttagtcgaaggaaataaagttacaggggtggtctccagca  
ccagaggagacttcttctgctttacgagattataactctgtatctcctcagcagaaaca  
ttcattggagaaaaacaaagaaagatttctcaaatgctactaaatctgatgttgacgct  
tcacttagtaagtagctacttatgaaactcaatataatgtttctagcggaaactaactat  
caaatctccttccaagaatacaatgggttcattctttaccgacaaactacacttatgaagtt  
gtagctaaaaataactctttaagttctaacacgtagcaactgctataattcgttaagtaaa  
gggtcaacaatgggttatgaattgggtgaattagacaacatgtctaaaactgggtgctaac  
cctagatttggtttagacagtaaaaggttagaccttctatctctactttctcccctcaatct  
actactcaagatatttcagttatttacactaaatatttaggtagtgcttcagcaatcaat  
acaactaaatcattgattgagcaactgctagttctattgaattacaagttaagaaactt  
actgctgagactgaatacaacaacatatttataaattcagacttctcttctggctgggaa  
gggttggataaatgttgatcctcagttatagttatgttgataaaaaacttttgggtatcact  
cttctcagcgaatcactaataaaaaataagaaatataatcacagttaaaatgacatacaat  
aaaaatacaattacccttctgtattttctaaattttatttctgttgaaaagggtcaagag  
gtagctatttgggtgaacatttaacactaacttgttatgcctatatcccttcttcatctaaa  
ggtaaattaactggtaacatatattgaattcgtgggttactatgaaaaagaccacaaaa  
tcaaaccccaatgattgctagacatgaaatattacctaagattttgaatataataaatgg  
ttcagaatgacagctagtagctgctattccttctactaactctgagggtaaaaaaatcaat  
tatattagagcttggttacgttatgacggtaaaaaatcaaagcgtaaataatagtgctata  
ttctattatgctgtacctaattagagcgtggatcaaaaccaacccagtggtcgttatca  
agacttgacgtatttagcactgaacaattggcagctaagattgccttaaacccagagagt  
gtggatattatcgcaagaaatattgatttcaatactgactcaatgaagatttataattct  
aacggtacattaaacatttctggagatactttaacaattagtaacaacaatagttctaat  
gaagtaattataaatccaaaagggttttactacttaaaaaagatgggtgtagttaagtttaaa  
aatggactagacacaagcgtattatagtgctcaagcttatgaaccacagtttagttcatgg  
aataatattaaagctactgatcccgtgctaaagagtaagtataattacattcgacataat  
gagccggggatgaatgggttattacactataaaactgggtttacaattttgagctacaa  
cacaacaactatttagaggttaataacaaaaatggcagaggttaacagggtatacatat  
ctttacaacaaaaagggtatttaaaaaatacaaatgtctgcttcttctcagggtaaaagtaag  
ctttatataatattcaagacaaaactggagatactacactccatcaagaaatagtttagt  
tctagttcaatgggtataccagatataacaattgacttacaggctaaattaggttatccg  
cctaacaatttgcagactttttgaattacaagctgggtattgcctatggagaaaaaat  
tctattgatgggttctttagaattagacgtatgggaatgacagatacaccaaatgaggag  
gtt

246.	atgtataacgtgacacagcatgctgacttataaaacaaaaataaacgagaaactgctgta ttaatcgggtgtacatgctcaaacggatcgtaatttgaatctactatggaagag ctcgatgctttatcacaacttgcgaacttaattgtaaggacaaactcactcaaaataga gagcaatttgaccataaataattatgttggaaggaagaaatcgatgaaataaaatcttcc atagaattccatgatatagatgttgcgtaaccaacgatgaattaacgacggcacagtct aaaacgttaaatgataatttgggcatataaatcatcgatagaaccaatataatttagag atattcgcgttgcgagcgagaagtagagagggaaagctacaagtagaacttgcacaactc gattatttgttaccagactacatggatcggttaaaagcctgctcgtcttgggtggg ataggaacaagaggcccggtgaaacaaaattagaattggatcgctgccatattagaaca cgtatgaatgagattaaacatcaattaaaaacggctcggtgatcatcggaagataaga ataaaacgtgaacaaaatcaagttttcaaatcgcttagttggttatacaatgcagga aaatcgctcatggtttaattgttttagctaatgaggagacctatgaaaaaataatttggttt gcaacattagatcccaaaacacgacaaaatacaagtgaatgaaggatttaatttaattatt tctgatacggtaggattttattcagaaattaccaacgacattgggtggctgcgtttaaatct acactagaagaagctaaagggtgcagacgtacttatgcatgctcgctcgatgaagtcattcg gaatacggtagctcaattgacactgtaaatcaattatgaatttagatagtgaccat attccacaagtagttatttttaataaaaaagacttatgtaacgaacagatggatgtacct gtatctaaatctgagcatgtttttgtatctagctgtagaaatgataaaacaaaagggtg aaaaatttagtaattcaagaaataaaaaatagctcagcccatcagaagaaattgtagat agtgtgtagcagatagattatattttcttaacacacacacgcttgtagtaattata ttgacgaaacacaaagcatcttatcgatcaagggttaaaaaatta
247.	atgatgacatcgctcatgtttaattcttgagttatctgattgggtgcattcccaagcgggtta attattggtaaaatttttttaaaaaagataagacaatcggtagtggaataactgga gcaactaacagtttctggtttcttggaagaccagctggatttatagttacgttttttagat attttcaagggtattattacagctctttttccactatgggtcccagttcatgaggatggt gttataagcaccctctttacaaatgggttaattagtaggattggttgcaatctcgggtcac gtgatcccaatatactgaaatttaattggcggaagacagtagctaccagtgacaggatt gtattagggtgcaatcctattttacttcttatcttggaatttatcttttttagtgattta aaaaatttttaaatatgtttctttatcaagtagcttgcagcaattagttggtgattggt tcaatcatcattcatgattatattttacttgctgtagcggaattggttcaatcatatta ataattcgacacaaatctaataagtttagaatttttaaggagaagaacctaaaattaaa tggatg
248.	atgatgaatcatagtgaagctttaactgaacaagtttttcatattgcttcagagctttat gcttatgtgtgaagagaagtagtaatttagtccaggttcacgttcacacacattagcactt gttttcgaagcacatccaaataataaaacatggattcaccctgatgagcgaagtgctgca ttttttgcttttaggtctttataaaggtagcgaacacctgtagcaattctttgtacatct ggaacagccgctgcgaactacacacccgctatagctgaaagtcaaatagtcgtttgctt ctcggtgttttaacgagcgacagaccgcatgaactgcgagtggtgacacctcaagca atcaatcaggtaaaatagtttagtaattatgtgaactttcaatttgatttgccgattgct gatggaagtgaacatacaattgatacaatttaattcaaatgcaaatgcaagtcattat ttatattggaccacacggaggaccgattcatttttaattaccatttagagaaccactaaca ccagatttagatcggtgctgatttattaacatctgtaactaaaacgtttacctcattatcag aaatcgatttcggtagatgatataaaagacataattacaagaaaaaattggtctcatcatt ctgaggagatatgcaacacaaagctgttgatcaaatattaacgtattcaactatatatgat ctgccaattcttagcagatccccttagtcagcttcgttaagagaacacatcctaatgttata accacttatgatttatgtatcgagcaggattaaatttagaagtagactatgtcatagct gtaggtgaagcagttatttctaaaaaataaatcaatgggtgaagaaaacccgatgcgtat caaatattatgtgcagaataatgatcaaattgatgtatttcgcgacaccctcatatctt tatgagatttcagcaaatgattttttccgttcattaatggaagaaacacattgttgaacga aaaaaattggttacagcaatggcaatcactgaacaacaagcagcattgaaataagtgat tacttaagcatcgacagatgaagcggcatatgtaggagtttaattcaaaaacttaca aaagaagatacattattgttggaatagtagccaattagagatgctgataaattactg tttgatagtgaggcatctgtatcgttaacgggtgccaatggaatagacggagtagtt tcaactcgctaggtatggcgccacataagaatgtgacattgcttatgggtgatttatct ttttatcatgacatgaagggtttatattggccaaatataatgaactcatattaacatt gtattagtttaataacaacggaggaggtatcttttcatatttacctcaaaaacgatcggt acaaaatatttttagcgattatttggaaacacacaggttaactttgaaataactgca ctgttatatgattttacatttaagcgtttgataatttgactgactttaaatatgctgaa ttatctaaaaatgggttctcacatgtatgaagttataaccaatagagacgaaatttgcat caacacaaaatttatatcagaatttgagtgagattgtaattgttacatta

249.	<p>atggcgaaaaattcaattacaaattaccgtctatgggtgctttaacgttatttggcaca  gcttttactgcacatcaagcaaatgctgctgaacaaccacagaatcagttcaatcataaa  aatgtatagatgatcaaaactgccctcaacaagcagaaaaagctaaaagcgaagttaaca  caatcaactacaaatgtatctgggtacacaaacatataagacctaccgaagtcaacct  aaacaagacacacaaagtactacatatgatgcatcattagatgaatgagttactataat  gaatttcatcaaatcaaaagcaacaattcttatacaacagatgatgcgaatcaaaatcaa  acgaattctgtttacaaaaaatcaacaagaagaacaaatgatttgacacaagaagataaa  acatccactgatacaaatcaattacaggagacacaatctgtagcaaaaagaaatgagaaa  gatttaggagctaacgcaaatatgaacaacaagacaagaagatgactgcaagtcaacct  tccgaaaaatcaagcaattgaactcaaaactgcttctaataatgaatgaagccaacaaaa  agtcagcaagtaacttctgaacaaaaatgaactgctacacctaaagtatcaaatacaaac  gcattctgggtataattttgattacgatgatgaagacgatgatagctcaacagaccattta  gagcctatctcattaaacaatgtggaatgtacatctaaacaaactacttcatataaatat  aaagaaccagctcaacgtgttaacaactaatactgtataaaaaagaaacggcatctaataca  ggcactatagatacaaaagcaattcaccctatttagtgcaactgctcaaccgagaacagtt  tattctgtatctagtcacaaaaacatcattaccgaaatatacacaaaggttaattct  tcaataaataactatattctgtaaaaagaatataagcaccagaatgaagaagattat  acgtcatatttccctaaatatgggtatagaaacgggtgtgggacgtcttgaaggtatcggt  gttcatgatactgcaaatgataactcaacaatcgatggcgagattgcttcatgaaacgt  aattacacaaatgcattcggtacacgcatttgggtgaggaatagaattatagaaacagct  ccgacagattacttattctgggggtgcaggtcccatatggaaatcaacgttttatcaatgtt  gaatcgctccatacacatgattatgattcatttgcacgttcaatgaacaactacgtgat  tatgctgcaacgcaattgcaatattataatataaaacctgatagcgtgaaacagatgga  agaggaacagtttggacacatgctgctatctcctaacttcttaggaggtactgatcacgt  gacctccaccaatatttaagaagtacaaatataagctatgcagaattatagacttaatt  tatgaaaaatatttaataaaacgaagcaagtagcaccttggggcacacacatctacaaaa  cgttcacaaaccttcaaacatcaggaggaaactaataaagttaactgtgtctgtctaat  cgtgggtgtgtctcaaatataaacacacaaatataaggttatatacaactgtttatgacagt  aagggtaactgaatgac  ggaaataacaaatattctatttagttgaagactacaatagcggtaaaaaatagcgttgggtt  aaacaaggtgatgttgggtataacactgctaaaggcaccagtaaaagtgaatcaacatat  aatgttaaaagcaggttcaacactttacacagtttcttgggttacacaaaaacagttgct  agcaaaagtatctggtactggaatcaaacatttaaaagcaactaaacagcaacaaatgat  aaagcaacgtatcttattggtacagtgaaatggttaaaatctgggttagtaaaatattac  ttaactacagcatctaaaccttagcaatcaactaaaccttcaacacacacacacacacacac  gtgactaacaatagtggttgggtcaaatcaatgcaaaaaatagtggttatatactaca  gtttatgacactaaaggaagac  gctgcacacttgggtgataaaaaattctatcttgggtgattataactggtgacaaat  tatgggttgggttaaaacagatgaggtcatttacaacacagctaaatcacctgtaaaaaatc  aatcaac  aatcaagtggttgggaacagtttccaggttaaggcgatcaaaactttaaagcaactaaacaa  caacaaatgataaagcaacatatctttaggtacagtgaaacgttaaatctgggtggatt  agtaaaactatttaactgcac  gcacataacacaggttaaaac  aataattctggaataagagcatctgtatataagataaacagccaaagtggtacgaaatc  gctaacagctacatttcttatcaataaaacacacacacacacacacacacacacacacac  cttcaagatggaac  caaaaatctcggaac  gggtctatattctattgcttgggttactaaaaacacacacacacacacacacacacacac  gctaactcaagcatttaattgcttccaaagctgtttagcttggtaagatttatatctatc  ggtacagctcaataac  gacgctcaatcaac  tatatggatccac  acagtcattaaagcaaaaaatatttaagcgttaaatggtactatggtcaacttttagac  ggttaaatatgttgggataaaatcaactgacttagttaaggaaaaaatataatgcatat  gttgaatgactttaataac  gtacaaaaatgagccttgaatgggtcaaatgctaattatagtcacaaatataaaatgctatg  gatacaaaagcgttagctaatgattcattcttaaaatatacaattctttagctttagatcaa  ccacaatatttgcagcacaagctctcaataaatatttaaaggcaaaaggtgtacttgaa  aaccaaggcgtgcatttagccaagctgcacgtaagtgggtcaaatgaaatttatctt  atctcacatgcttagtagaacaaggttaaggtaacttcacaacttgctaaagggtggagat  gttccaagggttaaatccacaactaaacaggtcacaataaccataatgcttcttggatt  gggtgcatttgacaataatgcactttagatgggtatcaaatagcgtaaaaatgctggatgg  acttctgtctcctaagcaattattgggtggcgtaaatctattggaaattcacaacgtgaaa  gcaggacaaaatagcgtatataaaatgcttggatcttgcacacacacacacacacacacac  tatgcaactgatataattgggcaaatgtcaacgcacacagttataaaacacacacacacac  aaaaattgggtgaagtcggttaagtacttcaaaattccaacacacacacacacacacacac</p>
250.	<p>gtggcatttgaatttagattacccgatatcggggaaggtatccacgaaggtgaaattggt  aatgggttatataagccggcgatataatgaagaagatgatgattagcagaagttcaa  aatgataaattctgtagtagaaattcttctccagtaagtggtactggtgaagaagtggtta  tagatgaaggaacagtggtcagtagtaggagatgctatcgttaaaattgagtcacctgat  gcagaagaatgcaatttaaaggtcatggcgatgatgaggttctaagaaagaagaaaaa  gaacaagaatccacagtgcaagaagaagcttcatcaactcaatcacaagaaagacagaa  tagatgaagaagtaaaactgttaaagcgatgccgtcagtgcgtaagtagtcagtgaaat  ggtgtcaatataaagctgtaaatggttctggttaaaatggacgaatcacaagaagaac  atcgatgcatacttaaatggtggttagttccgaagaaggttcaaacactagcgcagcatct  gaatcaacttctagtgatgctggttaagtcttctgcaacacacacacacacacacacacac  ttccctgaaactacagaaaaaataacctgcaatgcgcaagcaattgctaaagcaatgggt  aatcttaaac  tgggac  ttaccatattggttaaagcatttagtttctgcaacttaaaaaatataccagcacttaatact  tctttcaatgaagaagctggagaggtgtacacacacacacacacacacacacacacacac  gcagatccggaataaggtatttagtaccagtagttaacatgcgatcgtaaatcaata  tcogaatttctgatgaatttaataactagctgtaaaagcagctgaggttaatttaact  tcagaagaatgaaggtgcaacatgcacaaatagtaatatcggttccgctgggtggacaa  tgggttcaactccagttatcaatcaccacagagtagctatcttaggaattggcgtgacgt  caaaaac  agctttagccatagacaaatcgatggtgctactggacacacacacacacacacacacacac  cgcttataataatccagaattatttatgaatggagggg</p>

251.	<p>atgaatgaaacagacgaaatctcacaaatctatacaagcatcgattaccaagtttaagt  ggcttagcaaaaagtgctccacttggctcatagggccagcataggaggcggtttaaatgtg  gcagaatataacagaatataacgcctagttcaagtgcaaaaatcaatttaaaccattttac  aatcaaatgctagaagaagatgaagaggttaagttatcttactgcatgataaaatgaat  catctaccgatacttacagatttatttaaagaaatataatgaacatgtgatgcacacgat  ttatttgaccatgcaagttatactttacaaggtatttagaagtaaaatttcaagaacaaac  caacgaattcgtcaaaaatttagatagaatagtgaaaaatcaagggaatcaaaaaaacta  ctgtatgcaattgttaacagtaagaatgatcgcaatgttattccgggtgaaagctgaatat  agacaagatttcaatgggtattgttcatgatcaatcgccatcaggacaacactatattt  gaaccgaattctgtttagagatgaataatcaaatcagtcgtttgcgttaatgatgaagca  gttgaacgtgaacgttatattgactgaattgacgggatttgggttcggcggaagctgacgca  ttactcatgtctgaatcggttatgggtcaaattgatttttaatttgctaaagctcggtat  gcggcactataaaagggacaaaactacatttaaaggagatcgaactatattttacct  aatgcaatttccacctttattagacaaagatactgttgtagcaaatcaaatgaaatttatt  gacgatgtagaacagtcataatattcggaccaaacacgggtggtaagacgggttacttta  aaaacactaggattgataattgtcatggcacaatcaggattgttaattcctacactggat  ggaagtcgaattaaatgtatcttgaatgtatatttgatattggagatgaacaatctata  gaacaatcattatcaacattttcatctcacatgaaaaatatagtagaatattacaagat  cgagatcaaaatagttctcattttatttgatgaactaggcgaggtacagatccaagtga  ggtgcggcactcgcaatgagttatcttagattatgtacgcccgttttagggcttttagttatg  gcaacaacacattaccctgaattaaaagcttatagttataatcgtgaaggtgcatgaat  gcaagcgttgaattgacgttgaaacactgagcccacttataaattatttaaggggtt  ccaggagatctaatgcctttgatatactgaaaaaacttgggtctaagttctcaacatcatt  aataaagcttaagacaatgtagggacagacgagcaagagatcaatgccattgatgaatca  ttagaacaaaattcaaaacgtgttgatcaacaacgtatagaattagatcgacttgtgagg  gaagcacagcaaaacccacgatgctttgtctaaacaataccaacagatcaaaaattatgag  acatcatttgatggatgaagctaaagaaaaagctaatcagcgtgtgaatctgcgactaaa  gaagcgggacgaattcttaagaacttagaaaatctaaagatcataagggcgctgaggtta  aaagaacatgaattaaatgataaaaagaacaaacttgatgataatagaggttaaaatca  atlaagcaacatggttcaaaagaaaaagtagatagcattcactggagatgaagtgaaa  gttctatctttagcgtcaaaaaggtgaagtgcttgaactttaggtgacgaagaagcagtt  gtacaaatgggaatcattaaaatgaattacatttgaagatttagaaaaaacgaaaaag  aaaaaagaaaaacctacaaaaatggttaacaagacaaaatagacaaactattaaaacagaa  ctagatttaagaggtatcggttacgaagaagctttaaattgaattagatcaatatcttgat  cagggcggttttaagcaattacgaacaagtttatatttcatggttaaggtacgggggca  cttcaaaaaggtgttcaacaacatttgaaaaacataaaagcgttagacaatttagggga  ggtatgccttagtgaaggtggatttgggtgctcactgtggcagaactcaag</p>
252.	<p>atgagtttttttaacgtctgaaagataaattttcttagtaaaaaatgaagatgatattcaa  aaagacctggatgaattctgtagattcaaatgttaacagtgattcagattcattggatccg  aatgtattctgatgaacaagtttaaacccaaaaagaaacctaataaatttaagtgaaagctgat  tttagcagaagatggcttgatatacgattgaagattttgaagaaatagaagctcaaaaaatt  ggagcaaaattcaaggccgggttggaaaaatcacgtcaaaactccaagaacagtttaaat  aatttaattgctcgatatagaaaaagttgacgaagatttcttcgaagctctggaagaaatg  cttattactcgggacgttgggttttaactgtttagaaattactgtagagctacgtaca  gaagcacaagagcgttaatacaagaacagaaagacttaagagaggttatagttgagaag  atttgagaattctatcatcaagaggacgatcattctgaagcaatgaattatgaagatgga  cgtttaaattgtcactgatgggttgggtgtaaggtgctggcaaaacaacaacattgggt  aaattagcttatcggttatcaacaagaaggtaaaaaagtaattgttagctgctggtgatact  tttagagctggagcaattcaacaattaaacgtctgggggagaacgtgttggcggtgaaggt  gtgagctcaaaacgaaggttctgacctgcagcagtagtatatgatgcgattaatgcagca  aaaaataaagcgtagatattttaaattgtgacactgcaggacgcttgcaaaaataaattc  aatttaattgaagagtttagataaaatgaacgtgtgattaatcgagcaatcactgatgcc  ccccatgaagctttattatgcttagatgcaacaactgggtcaaaatgcactttcaagaac  cgttcatttaaggaagttacaattgtctcaggtatagttttaactaaattagacgggtact  gctaaaggggggtattgtattagcaattcgaaatgagttacacattccagttaaatattgtt  ggtttagggtgaaaaaattggatgacttcaaacggttttagtctgaaagctatgtatatgga  ttatttgctgatgatgatacaaaaatgaagattatcctgaagaaattcttagaaattca  tcggttgaattctgaagaaggtaac</p>
253.	<p>atgaaaaaagaattgggtgaaagaagcagttgcatatcaagtatatccacgaagttttaat  gatagtaattggagatggaataggtgatctacctggatttaattgaaaaattagattatcta  gaaaatttaggaatagatgtcatttgggttaagcccaatgtatccatcaccaaacgatgat  aatggatgatatttagtgactacaaggcattatgagtgaaatttggtacaatgaacgat  tttgatcaattggtatcaagcatatcatcaagagggatgaaatttaatttagacttagtg  gttaatcacacatcagatgaacaccccttgggttattgaaatcaaaatctagtaaaaacaaat  gcaaaaagagattgggtatatttgggcagatctcaaacggatggatctgaacctaaataac  tgggaaggtatctttaaattgggttcaacttgggagtttgacgaatcgactaagcaatactat  ttccatttatttagcaaaaagcagccagattttaaattgggaaaaatccagatgtaagacaa  gctgtgtttgaaatgatgaattgggtgtttgaaaaaggtattgacggatttagagttgat  gccattactcatattaaaaagaattttgaagcaggagatttacctgtacctgatggcaaa  aaatttgctccagcatttgatgtagatatgaatcagccagggaatacaagaatggctccaa  gaaatgaaagataaaatcgttaagtcggtatgacattatgactgtaggcgaggctaatgggt  gttactcctaatgatgctgaagaatgggttaggagaagaaatgggaaatttaatatgata  ttccagtttgaacatcttgggtttatggagtagtggcgatacgaatttcgatgttaattcc  tataaacaagttctaaatcgttggcaaaagcaactagaaaatgtaggttggaaatgcttta  ttatcgcaaaaacatgatcaaccacgtcgtgtttcaacctgggggtgatgataaaaattat  tggatgaaatcagcaactagtcacgctactgctacttttacaacagggcacacctttt  atttaccaggtcaagaataggtatgactaattatccatttgaagcattgaaagtttc  aacgattgcgagtgaaaaactgaatatcaaatagtcaaaaaagaggtggagatgtcaat  caattactagataaataaaaatggaaaacggagcaatgcaaggactccaatgcaatgg  aataattctatcaatgctggattcactactggttaagccatgggttctatgtaaaccttaac  tatacagaatttaattgttaacaacaactaaatgataagttttcgatactttcttattat  aaagcgttaattcaactaaaaaaatctgatttgatttacacctacggtaagtttaatatg  gtcgatgctgaaaaataagcaggtttttgcatacacgcacatttaaaaaacaattactgta  ttaattgtagccaattctacaaatgaagtatcagaactaaacctaccttttgaaatttagat  atttcatctgtagataaaaattgcataattatcacttaaatgatataaaatttagaccat  attaaaccttatgaatcattcgtcgttgaata</p>



254.	<p>ttgagtcacagaagctatttccctctctattccatttatcaacaagacaatttagat  gaacatattgctatttattggtataggacgtcgcgattataataacgaacaaatttcgagac  caagttaaagcgtcaattcacaacttatgttaaagatcacagatagaattgtaggtttatg  acgcaggttttttatcataaaactgacgtgagtgataaaagaaagttatcagtcattactt  caatttagtgagcgactagattcagaatttgcttttaggtgggaactcgtctgtttactta  gagatggcaccacaatttttggagtgatctcagattaccttaaatcttctggtcttaact  caaaactacaggaatttaaacycttagttatagagaacaaatttggcagtgatcttaaatct  gctgaatcatataataatcaaaataagacgttcgtttaaagaagaagaatttatcggaata  gatcactatcttggcaagatatggtgcaaaatatagaagttttgagattcgcaaacgcg  atgtttgaacctttatgggaataataaatcacatttcaaatattcaagttacatcatcagaa  gtattagggtgcgaagatcgtggtggctactatgaatctagtggtgcacttaaaagacatg  gtacaaaatcacatgctacagatggttcttacttgcaatggaagcaccgataagtttg  aatagtgaagatatacgtgcagaaaaagtcgaagtaacttctcttagacaattaaaa  ccagaagaagttaaaaagaatttcgtgctggtgcaaatatgataaggaatataagtggt  aaacaggttaagtcataatcgagaagaagatcggttagcaaggaattcggttacaccgaca  ttgtatcggtgtaaatcaaatgataacttagatgggtgaggttcttctctacatt  agaacgggttaacgtatgaatacaaaaacgatacaagtcgttagtagaatttaaagaagta  cctatgaatttatattatgaactgacaatttactagatttcaatttgctagtcatttaatt  attcaacaaatgaaggaatttcattgcatttaaatgctaaaaagaacattcaaggaatt  gatactgagccagtgcaattatcatcagcaatgagtgctcaagataaaatgaatcagtt  gatgcataatgaaaacttatgtttgattgtcttaaagtgatgagactaattttacacat  tgggaagaattaaaaatctacttggaaattttagatgcaatccaagatcaatggacaatg  gttgaaacatgtttccctaactatgaagcgggtacgaatggacctcttgaaagtgcattct  ttattaaagtcgtgaggaatcattgggtgggaatgatatccac</p>
255.	<p>atgattaaaaaaacaaagaagaactgaatgacatggagttatctagtcactcaagaaaaat  ggtactgaaacctcgtttcacaacgagttattggaatcactttgaaaaggaatttacgtt  gataaattgtccggcaaacattatttacttcagaggataaaattgtaacttaatttgcggt  tggccaagtttctccaagcatataatgatgatgaatcgtagaacttggtgataaaatca  tttggtatgtagagaactgaagttcgatcagaaaaagcaaatagtcacttggggcatgtt  tttaatgacggacctaaagaaaaaggtgggttaagatactgtatcaactctgctgcgatt  cagtttataccttatgataaactagaagagttaggatatggagatttaattaacatttt  aaaaaat</p>
256.	<p>ttgaaaaagttagcctttgcaattacagccgcttcaggcgcagcagcagttctatcacat  catgagctggaagcttctacacaacataaggttcaatctggagaatctgtatggactatt  gcacaacaatacaatacttcagtagaagaacatttaagcagaataataatcttagcaacaa  atggttattcccaggacaagttattaatgttaggtggaagtgcctcacaaaatactagttca  aacacttcttcaggttcagcatcttcacatactgtagtagcaggtgaatcattaaacatc  atagctataataatgtgtgttcagttgatgcatatgaagcaaatcatcctaaatggt  tatttaattatgcttaacaaatataaactatccctaagtggtggttctggttcaggatca  ggtgttacagcaactcaaaactagcggtaattatacttcaacttcaatcaaacatcaaaac  ttatcactgaaggtcaatgcacatggtatgtgttcgacaaacgttcacaagctggttaa  cctatcagttacttactggtctgatgcaaaatactgggctcaaatgcagcgaatgatggt  tatcaagttgataaatactcactctgttgggtgcaattatgcaaaagtcacactggaccata  ggtcatgtagcatagcttgaacgtatttaattggtgaggttagtattttaatttcagaaatg  aattatgcaaatggtccatacaaatatgaactatcgtactatccagcttcagaagtatct  tcataatgcatttatccactaa</p>
257.	<p>atggcacgtatttgctacaaaattgggctatcctgaaagcaatagtttctgtagtaatact  gtaattgaatttggtttacataacgaagcatatcctcggttatataggattaaaaactcga  gatcagaacttaataaaaatttctcaagctaagtaaatctcagctcaaatatacaaatggc  acgatgacgcttgaagaagcctaagtatcaattagagggaatatatgttgctaaaagagat  agcagcttacccttcaaggaattgcccagcaattatcgtacagagcttccctctatcta  caggaggtgctctggttgatatacatcacagctgtattagctggaacgatgggacttta  gtagtgaataattagatcgaagctacacgcacaaatttatccagaatttataggttct  ttggttaattaggtattatttctgtaattggacatgcatttggctcagcgagatttagct  acaatttatcattgcccgggtcatgctctattgtacctggagtagcttatcaaaatgctatt  caagatttatcggaggacatatgttaattgttacaacaaaatcttgaagctttagtt  actgcctttggtataggcgctggtgtaagttcaatatttaatttagtc</p>
258.	<p>atgcagaaatttgacttatccactagagaggggtcgttggaaacatttccggttctggtgac  cctgctcaaaaggtacgaaccaactactaaaaatgaatgacaggtttacaaagcactcac  aaaaatttcttatttgaaatagaggaagtaggcattaaaaatttaacttatccagtttta  attgatcagtatcaaacagctggtttatttagtttttcaacaggtttaataaaaaatgaa  aaagcatttaatatgagtcgcataatagaagcgttgaaaaacattatgataatggcatt  gaacttgaatttaacacatacatcaatttgtgctgacgtacaagataagatgaatcaa  aatgctgcaggtgttgatgtgcaggttaattggttctttgatggttatagtcctgttaca  catattaaagctgtaggtcatgcagatgttacttatggttttagctattgaaaatcatacc  gttacagctaaaagaatttaactattcaagccaaagtaacaaactatgtccttgctcaaaa  gaaatttagtgaatttctgcacataatcaacgtggtatcgttacagttaaagcatattta  gataaaaaatagacgtcatcgatgattataaaaaataaatttttagacgtatggaagcc  aacgctagtcttatcttatatccaatcttaaaacgtcctgatgaaaaacgagtaacagaa  cgtgcttatgaaaacccagatattgttgaagatttaattcgactaattgcagcagactta  gttgaatttgattggattgaaggttcgatattgaatgctgtaatgaagagtcctaccac  cagcatgatgctttcgacgctctgaaatatcgcaaa</p>
259.	<p>gtgcaaaaaaatatattactgccattattggaacaaactgcccttagcgcatggcatca  actcatgcacaagctgcaacaacgcatacagtaaaaagtggaagatctgtatggtcaatt  tctcacaatatgggatttagtattgctaaattaaaatcacttaattggattgacttccaat  ttaataattccctaatcaagtatgaaagtatcaggctcatcttcaagagcaacgtcaaca  aatagtgccacagtttatacagtttaagctggagattcattatcttctattgctgcaaaa  tacgggtacaacttatcaaaaaatcatgcaacttaattgggttaataactatcttattttc  cctggacaaaagttgaaagtttctggttaagcgacgagttccagtcgtgcaaaaagctagt  gggtctagtggtgctgactgcaacataactgttaagttagggactcactatctgcaatt  gctagtaaatatgggacaacgtatcaaaaaattatgcaatttaattggatttaactaatttc  ttatctatcctggacagaagttaaaagtgctggaggttagttctagtagctcatcttct  aataaactagatcaaacggtggctattattcacaacttttaaccatcaaaacttgat  acttggggacaatgcacatggcagctatttaataagcgtgctgaaataggaaaaggtatc  agtacatactggtggaatgcaaaataattgggacaatgcacagctgctgaggaataact  attgattatcgtctacagtaggctcaattgcacaaactgacgctggttactatggtcac  gtagcgtttgtagagcgcgtgaatagcagtggaagtatttagtttcagaaatgaactgg  agtgacgctcctggaaaatgacataagaacaaatccagcttatcaagtggagaattac  aaatttatctatt</p>

260.	gtgacacaaaaagcttttatttcttattctagaacaagtgtatgaacattttaaataagagtt gtgagaaataggagaaagtgtgagagttgatcatggaaattgatgttatttttagatgtatgg gattgactgaggggagatgacttgaatttttttattggagtcattggttaattgacgagacg atagattttgtttattatattaagcgattttcagttattttaaataagagcattatgagagaa ggaggagttggaaaagaaagcacaataattacttctcaaaatttatgataagcaaaaagat agtaagtttatacctgtcttttttagatattctggataaattggaaaacattaccacact tcttgaatactagattcgctattgatatgacagacatcgaaattagatatagagaaaata gaagagattgcaagaaaaatacacgataaaacctttattcgaaaaacaaagacttggtaaa gtaccagattataaaccaaatcaaaatgagttaaagaaagcaataaaaaaattaaacttta tctaaaagtataatgaacagagaaatttgaagaagcttttagacattatttataaaact tagaaaaatataagaaatagcgtagaggaataataaaagatgatttaattgactttaaaa gaggtttttgatacttggaaagaatttattacgtatgctgctaaacaattgataacttttat tttagggaatttaattcatagagcattataataggtgcttaagcttacggaagaagaattt gaaaatccaatgactaggatttttaattatttttcttcttactagtaagtgaattct ttatcttcaggagcaaatgaatttttgaagaatttattgaaatgctaaatttcattttagt agaagagaagcaaatattatataatgaatttatatcccagggtgtatccaagaaatatt tcataataactaatgtcaaaaaaattgttagcgaattgtactttgaagggaaggagttta aaaaaggttcaagatgcagatgtaatttttatatcacagaaggtcttatgaaaaaagattat catcgtgtatatagaacgtggcatgggttctgtgtatagtagatggcctatgcttgag caacaaactattaatttttaataaataaatttcgtagtaaaaaatattctagatcaattt gactttttatttggaggttcacaaagagaagttattgaaaactatgataagattaaattcc acacaagaataacctactatttttaattttatttgataaagaagaatttggcagctat
261.	atgcactatctaaagaagtaactatatacataagtttatttaattttgggtgagtggtgtg ggagacagcaaaagaaacggaattcaaacaaaacttttaataaaattgtaaatgtgtatcca actaaaaatctagaagacttttatgataaaagaggtttatcgtgtagaagagtttgataag gatgacaaaggaacatggatttatagatctgaaatgacaaaacagccaaaaggttaagatt atgacttcaaaaaggtatgggtgtacatatgaatagaatactagaagtagaactgggttat tactgttattaggaataattctgaagataataaaagtgaattgtagatgaagaagaagaa tatcctataaagatggtaataacaagataattccaactcaaaaaattaatgacaaataaa ttgaagaatgaatagaaaacttttaagttctttgtacaaacaggaagctttaaaaattca gatgattataaagaaggggatattgaatacaatcctaagcacaataatttctgcacaa tatcattttaagttaagttagctataatttaacaaatgaagaaaaagatatgattataaa acgaaaaaaactcctagattataatgagagggcgtgagatccaaaaggtatctctgtg ggttataaaaacttgaatttacttttgaagaataatgaggaaaattattttttacc gatagattataattttaaaccagcaagggttaattcattg
262.	gtgaaacattcgaaaaagttacttttattgcatcagtttttttatttaataacgtttttatt ggtggtatgtggttttatgaataaagacgatggttaaagaacggaatacaacaaaacttt aataaaattgttaacgtgtatccactaaaaatctagaaaacttttatgataaagagggc ctcgagatgaagagtttgataaggtgacaaaggaacatggatagttcattctaaaaatg gttattgaaccaaaggcaaaaacatggaattctagagggatgggttctcttatcaatcgc aatactagaacatcaaaaggtattttatagtcataaatagaagaaggtatagaagaagga agaccattataataaaaaagaaatctcgttaaaaaatgaaaaaataaaaaattattcca accaaaccaatatctaatgataaaattaaaaaagaattgaaaacttttaattttttgta caatattggaatttttaagatattaaaaattataaagatgggtgacatttcatcaatcct aatgtacctagttattctgcataatcaattgagtaataatgaatataacgtacaacaa ttaagaaaaagatatgacatcccaactaaaaaagttacctaactatttggtaagaggtgat ggggatttaaaaggtctatcgttaggttctaaaaatctagaatttacttttatagaaaat aaagaagagaatatctattttacagattctgtactatttagccctagcgaggataatgaa tca
263.	atgcgttatctcaagaaagtaacgatatacataagtttatttaatttttgtaagtggtgtg ggaaacggtaaaagaacggaattcaaacaaaacttttaataaaattgtagacatgtatccg actaaaaatctagaagacttttatgataaagaaggtctatcgagatgaagagtttgataaaa aaggataaaagggacatggatagttggatctaccatgacaattgaaccaaaggcgaagtac atcgattctagaggtatgtttctatatattaatcgcaactactagaacaaactaaagggtat tatattgtgaggaaaacacagatgacagtaaaaggtagactaaaagatgatgaaaagaga tatcctgtaaaaatggaaacacataaaaattttccaacgaagccaatacctaataagacaaa ctaaaaaaagaaatagaaaacttcaaaattttttgtacaatatggagattttaaaaactta aaggattataaagatgggtgacatttcatacaatcctaattgtacctagttattctgcacaaa tatcaattgagtaataatgactataatgtaaaacaaatcgcaaaaaagatatgattatccc accaaccaagccctaaattattgttaaaaggagatgggtgacttaaaaggctcatctata ggttccaaaagtttagaatttacttttatagaaaaataagaagagaatatctttttttca gatggtgtacaatttactcctagcgaggatagtgagtca
264.	atgaaacattcaagcaaaaataatagtttttgaagtttcttaatttttaacgatttttatt ggaggtatgtggtttttataaataaagaagatagcaaaagagctgaaatcaaacaaaacttt aataaaacgttaagtagtatccactaaaaatctagaagacttttatgataaagagggc tatcgtgtagaagagtttgacaaagatgacaaagggacatggattatttaattctaaatg attgttgaacccaaggggaagagatggaagcaagagggatggtttacgtataaataga aatacgagaacagctaaaggtaactttattataaaacgaataacagaaaaataaaagga atacctgatgtttaaagacaaaaaatatccagtaaaaaatggaacacataaaattattcca acaaaacaaattaaagataaaaaattaaaaaagaattgagaacttcaaaattttttgta caatatggaaatttttaaaacttaaggattataaagacggagagatatcttacaatcct aatgtgccaaagtactcagcgcaatatcaattgaacaattatgataataatgttaaacaa ctaagaaaaagatatgatttcccacgaatcaagctcctaattattattgaaaggtaca gggattttaaaaggtatcctctgtaggttataaacattctgaatttactttttatagaaaat aaaaaggaataattttattttactgacagataaaactttaaccggataggggggaat
265.	atgcgttatctcaagaaagtaactatatacataagtttatttaatttttaacgatttttatt ggaggtatgtggtttttataaataaagaagatagcaaaagacggaatacaacaaaacttt aataaagattgttaacgtgtatcctactaaaaatctagaagacttttatgataaagaaggt tttcagatgaagaatttgataaaggagataaagggaacttggattatttagtctgaaatg acaaaacagccaaaaggttaaaattatgacctcaagaggtatgggttctctatatcaatcgt aacactagaacagcaaaagggtatttttataagatgagataaaagatgataatagtggt agaccgatagagaattgaaaagaaataccctgtaaaaatgaaccataataagattcttcca acaaagccaattctgatgataaataaaaaaagaattgaaaacttcaaaattttttgta caatatggagatttttaaaaacttaaggattataaagacggagagatatcttacaatcct aacgttccagttactcagcgcaatatcaattgaacaataatgataataatgttaaacaa ttaagaaaaagatatgatttccaaccaatcaagccctaaattattgttaaaaggggat ggcagacttaaaaggtcatctgtaggttctaaaaatttagaatttacttttgtagaaaat aaagaagagaatatattttttacagatgcagtaacatttactcctagcgaggatgatgaa tca

266.	<p>atgaagacctataagccgtaccgacatcaattaaaggcgttcgctatttgcctcaacgatt  tcccagttatttgggtgatgattattgggttaataagcttttatgctatttatatatgg  gtcgaacatcgaccattcatcagcataccatcaaaccaaacgaattacaacgtatc  gacaaacattttcatagctttgttacgcagcaacaaacaaatggcgctcatgttgattta  tcacatccaactgatatacaaaagatgaaacgccaactattaaaacaagtccatcaacaa  cctcgcatatttgattacgatttaaaggcttcttcacaatctttcacaaacaaattatgaa  caattagacacacaaagatgtatttaatatcaaaatctgaattgatttaaagacgat  acttatatccttaaaatatatatgtcaagcacaccactacttaaaaacattaaagaaaat  agtggacaatctgcactcattgttgattcatatgatactgttttatatacaaaatgacgac  cgatttctctatcggtcaaaaatatcaaccaccacagtttgggtttatgaacgagctctta  aaactcaattctcatcatcgccatcttattatatataaagatattcatgaaacattgaa  gatggaaattgcattactagttgtcatgggtgttggcttcttctgctgttatttttggga  tatataagcgctgtagaattggcaaacgccaatctgaagatattgaagcgattgttccga  aaaattgatgatgtcaaaaatcgacatcttggtagttacgaacggttaaaaaacatagtt  gagttagaggaaaataaaataattatatctatgacttgttgaatcaaatgagcaattaaat  caatctattgaacagaccgaacgtcgtttacgtgatatacaattaaaagaaaattgagcgca  caatttcaacccccatttcttattcaatcagatgcaaacgatacaatatttaattctctct  tcacccaaagtagcacaacagctcatcaacaactatcaaaaatgctacggtatttctcta  cgacagcatcgccacacagtcacaaatagcagaagaattaaagctacattcagcagatgtt  gctatacaaaaatctcgcttcgatgatgatgatacagctttacatcgatgctcctgaagat  gtacaacatcaaaaatgttgtaagatgatgttcaaccactcgtagaaaatgccatcaag  catgctcgtgtgtgtacacctttaaagatacaaatcgtatcagacttacgaagcgcaaa  ttacatattctggttcatgatataatggcatcggtatgtctccatcacatttagaacgctg  cgccaatcacttcatcagatgtttttgatcagcacacacctaggtttaaatcatttcat  aatagagccatcattcaatatggaacatatgcagctctgcacattttctcaagaagccat  caaggacatttaattgtgttaccaaaataccacttgtc</p>
267.	<p>gtggatgatgtgacaaaatattggtccagtttgatggagatccgattacgtcaacggaagaa  attccggtttgataaaaaacgccaatttgatccaaacttagcgccaggtacagagaaagtc  gttcaaaaagggtgaaccaggaacaaaaacaattacaacaccaacaaactaagaacccatta  acaggagaaaagggtggcgaaaggtgaaccaacagaaaaataacaaaacacaggtggat  gagatcgttcatattggtggcgaaagaaatcaagacagggccataaggaatgaatttgatccg  aacgcaccgaaaggttagtcaaaacacgcaaccaggttaagccaggttaaaaatcctgat  acaggcggaagtagtcacaccaccagtggtgatgtgacaaaatattggtccagttgatgga  gatccgattacgtcaacggaagaaattccggttgataaaaaacggaatttgatccaaac  ttagcgccaggtacagagaaagtcgttcaaaaagggtgaaccaggaacaaaaacaattaca  acgccaacaaactaagaacccatttaacaggggaaaaagggttggtgaaggtgaaccaacagaa  aaaatacaaaaaacacaggtggatgagatcgttcatattggtggcgaaagaaatcaagcca  ggccataaggatgaatttgatccaaacgcaacgaaaggttagcgaagggacggttccaggt  aaaccagggagttaaaaatcctgatacagggcgaagtagtcacaccaccagtggtgatgtg  acaaaaatattggtccagttgatggagatycgattacgtcaacggaagaaattccggttgat  aaaaaacggaatttgatccaaacttagcgccaggtacagagaaagtcgttcaaaaagggt  gaaccaggaacaaaaacaattacaacaccaacaaactaagaacccatttaacaggggaaaaa  gttggcgaaaggtgaaccaacagaaaaatacaaaaaacacaggttagatgaattcacagaa  tatggtggcgaaagaaatcaagccagggccataaggatgaatttgatccgaacgcaacgaaa  ggtagccaagaggacgttccaggttaaacagggaggttaaaaatcctgatacagggcgaagta  gtcacaccaccagtggtgatgtgacaaaatattggtccagttgatggagatccgattacg  tcaacggaagaaattccggttgataaaaaacggaatttgatccaaacttagcgccaggt  acagagaaagtcgttcaaaaagggtgaaccaggaacaaaaacaattacaacaccaacaaact  aagaacccatttaacagggagaaaaagggtggcgaaaggtgaaccaacagaaaaatacaaaaa  caaccagtggtgatgagatcgttcatattggtggcgaaagaaatcaagacagggccataaggat  gaatttgatccgaacgcaacgaaaggttagtcaaaacacgcaaccaggttaagccagggagtt  aaaaatcctgatacagggcgaagtagtcacaccaccagtggtgatgtgacaaaatattggt  ccagttgatggagatccgattacgtcaacggaagaaattccggttgataaaaaacgga  tttgatccaaacttagcgccaggtacagagaaagtcgttcaaaaagggtgaaccaggaaca  aaaaaattacaacgccaacaaactaagaacccatttaacaggggaaaaagggttggtgaaggt  gttcaaaaagggtgaaccaggaacaaaaacaattacaacgccaacaaactaagaacccattta  acagggagaaaaagggtggcgaaaggtgaaccaacagaaaaatacaaaaaacacaggtggat  gagattggtcattatggtgggtgaacaaaataccacaagggtcataaagatgaatttgatcca  aatgcactctgtagatagtaaaactgaagttccaggttaaacagggagttaaaaatcctgat  acaggtgaagttgttaccaccacagtggtgatgtgacaaaatattggtccagttgatgga  gattcgtattacgtcaacggaagaaattccggttgataaaaaacggaatttgatccaaac  ttagcgccaggtacagagaaagtcgttcaaaaagggtgaaccaggaacaaaaacaattaca  acgccaacaaactaagaacccatttaacagggagaaaaagggtggcgaaaggttaaatcaacagaa  aaagtcactaaacaacctgttgacgaaaattggtgagatggttcaacaaaaagcagaacca  ggtaaacacagcggaaccaggttaaacacagcggaaccaggttaaacacagcggaaccaggtacg  ccagcagaaccaggttaaacacagcggaaccaggttaaacacagcggaaccaggttaaacacagcg  gaaccaggttaaacacagcggaaccaggttaaacacagcggaaccaggttaaacacagcggaacca  ggtacgcccagcagaaccaggtacgcccagcagaaccaggttaaacacagcggaaccaggtacg  ccagcagaaccaggttaaacacagcggaaccaggtacgcccagcagaaccaggttaaacacagcg  gaatcaggttaaacacaggtgaaccaggtacgcccagcagaaccaggttaaacacagcagaacca  aatagatcaatgattcaacagataaaaaatcaattacctgatacaggtgaaatcgt  caagtaattgagggaaacttttagtcggtatctctattagcaattgtcggtatcattgttcata  tttggctcgtcgttaaaaaaggtaattgaaaaat</p>

268.	mtkkekdykksleqqktrvkiyksgkswvkasineieillktmgplpfkskneiqlenvtekt kghklkksaakttalvggaftfnmlnnhqafaasetpitseissnsetvanqnsstikms qketvnsstlesnhsnstnkqmssevtntagssekagisqqsssetsngssklntyastdh vesttinndntagqdknksnvstskstqnsstsssekniissnltqsietkatdsilatsear tsnqisnltststsnqssptsfanlrtfstrftvltmaapttsttttssltssnvvn kdnfnehmmlsgsatydpktgiatltpdaysqkgaislntrldsnrsfrfigkvnlgny egyspdgvaggdgigfafsppglgqigkegaavgigglnmafghldtyhntstprsdak akadprnvvgggafgafvstdrngmatteestaaklnvgptdmsfgdfvidyngdtkvmt vtyaggtftrnltwdiknsggttfslsmtastggaknlqqvqfgtfeytesavakvryvd antgkdiippktiagevdgtvnlidkqlnnfkmlysvyvgtdalkapnytetstgtpklkt nssqgtviyfkfdvqgppqisvdsqtrevgktinpititttdnskdvlttvtglpsglisfd qtnntiigtpevgttttvtvnttdatgnvtskqftititqdtisppvntvpsqasevftpi nptitadnsgkvvthvtvtpgglkfdastnsivgtptqigtntitiestdasgnktt tkinyevtrnsasdststsiivsvstsisnstsldsvkasqslstkestskslsgslsa stnsasikasesastskklseasastsmdsasikasesastskklseasaststsdasasi kasesastskklseasastsmdsasikasesastskklseasaststsdasastqasesast skklseaststsdasaststsesdstsestslsdstssasleestststsdasaststsed snststslseststslsestststsdasastsvdsnsastslreststslsdststst sdaststsedsdasastslsgssstsvdsstasaststsisdnststslsest stslsestststsdasastsmvdsnsasislseststsvdstststsesaststsed snaststseststsvdstststsdasaststsvdsnsastslseststslsdststst sdaststsvessstskklseasastsmdsasastseststslsgststslsgstst stsesaststsvdsnsastslseststslsdstststsdaststsedsnststsmse slstsvdstststsdaststsvdsnsastslsdststslsdststsdasaststse sestsestsvessstsvdstststsesaststsestsestsestsvessstsvdstst stsesaststsestseststslsgssstsvdstststsesaststsvdsnsaststslse ststslsnststsdasaststsvdsnsastslsgslstnvdstststsdaststse sdnsastslsgslstslsdstststsdaststsesaststsvessstsestsmvdsn ststslsdststsvdstststsdaststsksvessastsvsgststslsdststsm stsetftsqspsinesqfigdlsedtiqtgskntnmlnktgkdydlgeqrgytdseghn etqsnqadnhsnldllhqnrlqdkvvkqptkgedgvvsnfivavaiavlafglakksr kdddddqgsk
269.	mkkvtiastlavslgiagyglsgheahasettnvdkaahlvdlahnpaelnakpvqagay dihfvdngyqynftsnsgsewsyavagsdadytessnqevsantqssntnvqavsapt ssesrsyststtsysapshnysshssevrlnngntagsvgsyaaagmartgvsastweh liaresngqlharnasgaaglfqtmppggstgsvndqinaaykaykaqqlsawgm
270.	mnmkvivigstnvdkflnvkrfppgetlhinqakefeggkganganlaasrlaadttf iskvgkdqmanfiledfkkgihtiqtvltseseetggafitvdeagqntilvygganmtl satdvmsvdafigadfvvaqlevpfaieqafklarknittvlnpapaelpksllel tdiipneteealltgisinnesdmketatyfldlgisavlitlgeqgytcaaygeqykmi pacnvkaidttaagdtffigafslselnkdlslsairlanqassltvqrkgaqasiptrk eveaeyn
271.	malldkypitnrgnmtldfaeitkttkpeksllqplpkragnngkltrvhgggghkr qyrvidfkrnkdgliakvdsiqydpnsanialivyadgekryiiapkglgvggtvesga eadikvgnalplqniptvgtvihnlelpgkggqlarsagassqvlgeqkyvlirlrse vrmlstcratigqvgnlqhelvnvvgkagrsrwkgvrptvrgsvmnpndhphgggegrap igrpmpspwpgkptlgkkttrrgkksedklivrgkklk
272.	mkskftillftisttvlvlviynktqsgsyisthysnnkiktatflhgygggse tfmvkqalnknvtnavitarsvsegkvyfdkklseadanpivkvefkdnkgnfkenayw ikevlsqksgqfglqgnfvghsmgnmsfafymknygddrhlpqlkkevniagvyngiln mnenvneiivdkqgkpsrmaayrqllslhkiycgkeievinnygdledgshsdgrvns ssqslqyllrgstksygemkfgakaghsqihenkdvaneigflwet
273.	mkigidaggtlikivgehdnrryrtelttniqkvidwnneeietlkltggnagviadq ihhspeifvefdasskgleilldegghqiehyifanvgtgtsfhyfdgkdqgrvgvgtg ggmiqglgyllsnitdykeltnlaqngdrdaidkvhkiykdteppipgdltaanfgnvl hhlndqftsanklasaigvvgevitmtaitlareyktkhvvyigssfnnnqilrevveny tvirgfkpyyiengafsgalgalyl

274.	<p>mtlnnhfaytfeerptpklwlckpdgtrieriadfsklggtfkftnvtlhfddlpqvfse  edtkqlernkvvdvlvknkylidyryngyrdifviddikkssandsdftlnlndsraselnk  kaanelellgstipqmmnkilsvyaplwkglhvvgdkidvkrletgtsntvnalidnics  lfdaavaiynnirtisfyhkdnvgtnglrvrensylksfedqfvskdvtrlypfgqsg  ltiqsvnpagssyiedfsyfmfpkrdrnnrvlghsdymdelchalldyqefyaskkdq  agelskqysailkehsqedfrlnqlsatlqrlnervelvpxkseyidltgkvkfkkitvp  ksyyylimirndgsftrikfnkqydipsgewlyiklktgkfnatkfekqleyplells  ananlrvvyrsssegdyeedtktieekynlekykilvkdqekvvasierllkafedqka  svirsmnaknflsekllynerelyvfesvwtenehtdaqelyddavkqmkqekkinrtitv  divnfiqsidhkdwdklnvgdkvfgnki fntkikayitemqldfqtnqvkittisidfd  yklddtiaaeklaqtstssqvdfhkqgiregtgriidmtrliegewdankkrvmagnet  vdigshgvkviskenpnefvimvggviamtrdngetfktgtpeginaemligkmivget  ltfenesgtvkfdkgdlyvnsknfhlvsndgeedyfdkllkremsenakqgtdormleeykk  evsqtiseatdvrvnvdnaadilgaafadgvtidvekrli setlaqlenrefedkinl  alnhpyiteedtielnnsiveyssmyetlvvisinesvsdkmitpgeeseinqniinfree  ikdilsiveei iertknaqlgatleeakdytrrvrdidkdelkdnnsfkslnstveesl  qdni fdaaeleakttvvlvtkseyyqdi tnyrssmsantdlksesklidtksyktldtsfn  divkyidemtmdriadetevnykkykdtlqknlssymkkydncileiskkyssndaadv  lgdftaiaatelqndfgdvkdnwae fktttlesfkdgivteaeakarlvqldmdresmd  eerykallangyntndiknrltasrpylsvhaslrkviegiadgkvdesektlanisl  ntynttltaysktiqealntlsqiissdvaskkveefngvittissdvdtikqrdgavi  tyyysgvptl sndpakswtndlkdlhikdmyldtksyaytftksqtsyswkp ltdgvi  vsslkqaknaqdtadnkrvfvtpippydggdmwtqsgqgdlyvcgtsratgsvssdw  vkasktdtdvakqaakdledykvmtdkdfkdlndgvstfktevvdvkdkgdgvteaeaktr  lrqvldildresqdieerynsi fnsqyadtqvktssnarstynns ltkl rntiqgtvied  kntvptekttanqtl taynnal tsysaaiqealnsmskvlaqkeatsqvnqfneviknin  tnitdiqkvdgaietfyyysgvptltnipasywt taskreahlgdlyldtatgvayrflk  kggtstpyywpisldgltidalnraqtadgkrrvfvntppvpydtgdmwtqasgd  ilvcktpakkggiysidvkwaskytdtdvansavqqlneykrtnnldiadlkrktsdfe  ktvvnafddrvisisesssikgqallnbekdr ltrqyeniirnsnlvgaektklstays  nntklslsttinsalvdkivdaesksvtskfelykasvneyqiafdnalnsiireia  ssqakdrldewkrtefstddgiiervagakfkskwttdwrtvnpaiqqvsnlytysen  llnsesrsdgantttsthsfiryy ltrpletgktytlkasvlttderqsgqisvypyspng  aretvniakgkitytftagtestgfliykdvaggsdvdlnvtiekailvegnkvgtwspa  peetssalrdyntriisaetfieknekeisqiatksdvdaslkvatyetqynvssgtny  qiplqeyngsfddnttyevvaknslssnnvatai fvsksngngyelvdlnmsktgan  prfvldskgrpsistfspqsttqdisviytkylgsasainttksllieqtassielqvkl  taeteynmllnsdfssgwegwinvdqyysivdntfgitl pdaiktakmkyntvkmty  kntnypkvsfnfisvgkggevaigehl tltcyayipssskgkltniyeiefagyeqdkq  snpmiarheilpkdfeynkwrmtastaiptnsegkkiniraclyrdgkngsvmsai  fyalpqlergskptewslsrlvdfstelaakialnpsvdliarnidfdntsmkiy  ngtlnisgdtltisnnnssnevi inpkgtllkkgdvvkvfngldtsdysvqayepqfssw  nnikatdpaakskynyirhiepgmggytintgvynfavqhkqllewnntknarvnryty  lymkrylkiqmsassrgksklyiifkktgtdtlhqeivssssmvpvdtidilqaklgyp  pnnlpdfelqagilaygennsidgffrirrmamt dtpnaev</p>
275.	<p>myntvqhatyktknkretavligvhaqtdrgnfesmeeldalsqtcqlnvkgqitqnr  eqfdhkyvvgkgkideiksfiefhdidvvtndel ttaqsktindnlgikiidrtqlile  ifalrarsregklqlvelaqldyllprlhhghgkslrlggigtrgpggetklemdrrhrt  rmeelkhqklktvvdhreryrnkregqvfqialvgyttagksswfnvlaneetyeknilf  atldpktrqigvnefnliisdtvgfiqklpttlvaafkstleakgadvmhvvdashs  eyrtqiddtvgiindldmhipqvvi fnkklcmegmdvpvksahvfvsrrendekqkv  knlviqueiknslspyeiidsadadrlyflkqhtlvtelidfetqasyrikgfkkl</p>
276.	<p>mmiivmllslylgafpsgliigklffkddirqygsngtgatnsfrvlrpagfivtfld  ifkgfifvffplwfpvhadgvisftftnglivglfailghvpyiylkfnggkavatsagv  vlgvnpilllilaliffsvlikfyvslssiaaiscvigsiihdyillavsgivsiil  iirhksnivrifkgeepkikwm</p>
277.	<p>mmhsealteqvfsfaselyaygvrevvispgsrstplalvfeahpniktwhpdersaa  ffalglkigsekpvailctsgtaaanypaiaesqisrlplvlttsdrphelrsvgapqa  inqnmfnsyvnvqfdlpiadgsehtidtinyqmqlasqlylgyphrgpihnlfpreplt  pdlrdrvdlitstvtktlphyqksisvddikdlqekngliivgdmqhgavdgiltysti  ypiladplsqrkekhpnvittydillyraginlevdyvrvvgkpviskknqwkktday  qilvqndqldvftpphisyeisandfrrlmeepiverkkwlqgqslqgqarieisd  ylkhatdeaaayvgsligklktedtlfvgnsmipirdvnl fdeasvyanrangidgvv  stalgaamahknvtliligdlsfyhdmgllmaklnelhinivlvnnmggafsfylpqrksa  kyferlfgtptglnfeytallydftfkrfdnltdfkyaelksmgshmyevitnrdenlh  qhqnlyqkiseivnvtl</p>
278.	<p>makkfnyklpsmvaltlfgtatfhqanaaeqpqngsnhknvlddqtalkqaekaksevt  qsttnvsgtqtyqdtpqvqpkdqtqsttydasldemstyeissngkqqsistddanqng  tnsvtknqgeetndltqedktsttdtnqlgetqsvakenekdilgananneqgdtkmtasqp  senqaietqtasndnesqgksqgvtsqnetatpksvntnasgynfyddedddssdhl  epislnnnvatskqttsykykepaqrvtntvktetasnqatidtkqftpfatagprtv  ysvssqktsslpkytpkvnssinnyrkknmkaprieedytsyfpkygyrngvgrpegiv  vhd tandnstidgieafmkryntnafvha fvdgnriietaptlylswgagpygnqrfinv  eivhthdysfarsmnyadyaatqlgyynlkpdaendgrgtvthaaalnfllgtdha  dphqylrshnysyaelydllyekyliktkqvapwgtsttkpsqpskpsggtnnkltsan  rgvaqikptnnglyttvydskghktqvgkltsvtktatlgnnkfylyvedynsgkkygww  kqgdvvyntakapvkngtynvkagstlytvpwgtpkqvaskvsgtngqtfkatqgqid  katyllygtvngksgwiskyylttaskpsnptkpsnmqltvttnsgvaqinaknsglytt  vydtkgdltngiqrtlsvtkaatl gdkkfy lvgdyntgtngygvkqdevlyntakspvki  nqtynvkpgvklhtvpwgtynqvagvtvsgkgdqt fkatqgqidkatyllygtvngksgwi  skyytlvpskvqalstqstpapkvkpsqtvtvniagvkannsgirasvydktaksqtky  anrtflinkqrtqgmntyvllqdgtsntplgvvndvttqni gkqtqsigkyvskptnn  glysiaawgtknqqlapntlanqafnaskavyvgkdllygtvnnrtgwiaakdlignst  daqstpyntfvinnsksyfymdptkanryslkpyyegttfvtikqkningvkwyygqild  gkyvwikstldlveki kaytgmtlnnainiqsrlykqpqvneplkwsnanysgiknam  dtkrlandsslykfllrdqpylsaqalnklkgkvglenqgaafsqaarqyglneiy  ishalvetngtsqlakggdvskgkfttkthkyhvnvfgafadnnalvdgikyaknagw  tsvskaiiggakfigsyvkvagqntlykmrwnpanpgthqyatdinwanvnaqylkqfyd  kigevgkyfeiptyk</p>

279.	vafefrlpdigegihegeivkwfikagdtieeddvlavqndksvveipspvsgtveevl vdegtrvavvgdvikidapdaemqfkgghgddedskeekesqspvgeasstqsqekte vdesktvkvampsvrkyarengvnikavngsgkngritkediddaylnggsseegsntsaas estssdvvnasatqalpegdtpettekipamrkaiakamvnskhtaphvltlmdedivgel wdhrkfkfkeiaaeqgtklftflpyvkalvsalkkypalntsfnneeagevvhkhywnigia adtdkgllvpvvhkadrksifeisdeinelavkardgkltsseemkgatctisnigsaggq wftpvinhpevailgigriagkpvkdgeivaapvlalslsfdhrqidgatqnamnhik rlinnpellmeg
280.	mnetdeisqiynkhrplsaglakvpslvhrasiggvlnvaenrikrlvqvngqkftfy ngmleedeekypilhdkmnhlpiltdlfeinetcdahldfhasytlqsisrskisrtn qrirqlndrivknggnqkklsdaiavtrndrnvpvkaeyrqdfngivhdgsasgqtlvi epnsvvemngisrlrndeavererilteltgfvsaeadalliaesvmgqidfliakary artikgtkptfkedrtiylpnafhplldkdtvntiefiddvetviltgpnrtggktvtl ktlglivmagsglliptldgsqslisfenvyccidgdeqslstfsshmkniveilgd adqnsllifdeigagtdpsegaalamsildyrrigslvmatthypelkaysynregvm asvefdevetlspytklmgvpggrsnafdisklglslniinkaktmigtdeqenamies leqnskrvdqgrieldrlvreaqgthdalskqyqyqnyetslmdaekakanqrkvsatk eadeilkelrnlrdhkaevkehelidkkqlddgyevksikqhvqkkkydtihtgdevk vlsyggkgevelnvgeeeavvqmgiikmklpiedlektkkkektkmvtrqrnrtikte ldlrgyryeealneldqyldqavlsnyeqvyiighkggtgalqkgvqghlkkhksvrqrg gmpseggfgvtvaelk
281.	msffkrldkdfsskneddiqkdldevsdnsnssdsmdpndsdqvkpkkkpklsead fdeglisiedfeeieagkigakfagleksgnfgqelnliarykvdedfleaalem litadvfgntvmkltdelrtaeqrrnigetedlrevivekiveiyhqeddhseammiedg rlnvliimvgvngvgtktttigklayryggqgkkmvlaagdtfragaiqlnvwgervgvev vsqnegsdpaavvydainaaknkdvildicdtagrlnksnlmgeldkmkrvinraipda pheallclldatggnalsqarsfkevtvsgivltklldgtakggivlaimnelhipvkyy glgekmddlqpfpesvyvglfadmiqnedipeeisrnsseeseeegn
282.	mkrynwykeavayqvyprsfnsgdggidplgliekllylenlgidviwlsmpmypsndd ngvfidyktvdsqesqslqfserldsefalgnrlfylamapqffgvisdykssglt akrdwyiwadpkipdgspepnwesifngstweftdestkqyfhlfskkqpdlnwenpdvrq avfemmnwfwefkldgfrvdalithkknfeagdlpvpdgkfkafadvmnqpgigewlq emkdklsrydimtvgangvtpndaeewvgeengkfnnifqfehlglwstgdkfdvks yqqlvnrwqqlenvgwnalfienhdqprvrtwgddknywesatshatayflqggtpf iyqvggelgmtnpyfesiesfndvavkteyqivkkggdvngllldkykmenrdnartpmq nnsinagfttgkpwfhvnpnyteinvkqqlndkfsilsyykaliqlkksdliytgkfnm vdaenkqvafaytrtfrkntvlivanltnevselnlpfeldissvdiikhnyhldindldh ikpyesfvvlei
283.	lsbrklfpsi fhllyqqndldehiaigirrdynneqfrdqvkasiqtyvkdtdridefm thvfyhktvdsqesqslqfserldsefalgnrlfylamapqffgvisdykssglt qttgfkrlviekpfgsdlksaeslnnqirrsfkeesiyrldhylgkdmvqnievlrfana mfeplwnnkyisniqtsssevlgedrggyessgalkdmvqnhmlqmvalameapisl nsediraekvklslrqlkpeevkknfvrgyqdggnidgkqvksyreedrvakdsvtpt fvsqgltidnfrwagvpfiyrtgkrmkstktigvvefkevpmmlyyetdnllidsnllvin iqnpegisllhlnakniqgidtepqlsyamsaqdkmvtvdayenllfdclkgdatnfth weelkstwkfvdaigdwtmvepcfpnyeaagtnplesdilllsrdgnhwwddih
284.	mkkkneelndmeylvtqengteppfqnaywnhfekgiyvdkslsgkplftsedkfesncg wpsfksalnddeivelvdksgmirtvvrsekanshlghvfnidgpkpegglrycinsaa qfipydkleelgygdlikhfk
285.	lkklafaitaasaaavlshhdaeastqhkvsqgeslwtiaqyntsvesikqnnlsm mvfpggvnvgssasqntssntssssasshtvageslniankygvsvalmqanhlng ylimnqiltipngsgsgsggtatqtsqnytspsfnhqnlyteggctwyvfdkrsqagk pistywsdakywasnaandgyqvndtpsvgalmqstpgpyghvayveringdgsilsem nyangpymnyrtipasevssyafih
286.	mariatklgyesnsfvntviefvlhneayprlyriktrtdnlikisqaneisrqitng tntleakqgleeyvakrdsslpfkgaiaaiatsfilylqggrrldiitavlagtigyl vveildrklhaqfipefigslviglisvighafvpsgdlatiiaaavmpivpgvliitnai qdlfgghmlmftkslealvtafgigagvssililv
287.	mtfedlstrgrwkhfgsvdpvkgtkpttknemtdlqgsthknlfeieevgiknltypvl idqygtaglfstslmeknginmsrilesvekyhngielefntlhqllrtldgkmmq naagvdsqkwffdryspvthikavghadvtyglaienhtvtrkeltigakvttlpcpsk elseysahnqrgivtvkayldkndviddyknkildameanassilypikrpdekrvte rayenprfvedlirliaadlvfedwiegfdiecrneesiqhhdafarlkyrk
288.	vqkkyitaiigtalsalasthaqaatthtvksgevsvisishkygisaklkslngltsn lifpnqvlkvsgsssratsnsgtvytvkagdsllsiaakgytgykimqlnglnnylif pgqklkvsgkatsssrakasgsgrtatytvkygdsalsaiaskygttyqkimqlngltnf fiypgqklkvpggssssssntrnsnggyysptfnhqnlytwgqctwhvfnnraeigkgi stywnannwnasaaadytidyrtvgsiaqtdagyyghvafvervnsdgsilvsemnw saapgnmtvrtipayqvnykfi
289.	vtkkafisysrtsdehlrvvrigeslrvdhgidvildvwdctegddlnffmesmvndet idfviilsdfoynrandregvgvkestiitsqiydkqkdskipvflidldngkpslpt fcntfraidmtdielddiekieiarkihdkplfekprlgkvpdyngnqnelkkaikktl ksynetrnfiealdiiyktleniensveeynkddmltkkevfdtwkefityalnndnfy freliehyrnrcklkteefenpmtri fnyfsfllvseslssganeffklldlnakfhfs rreanyyilslypqvlskksyntnvkmlaemyfegkelkkvqdadvilyteslmkkdi hsvyetwhgvllysrwpaleqqtinilinkfrskkyldqdfllfgssqrevfenydkiks tgeiptifnidkeeigsy
290.	mhyllkvvtiisllilvsgcgdskeiteikgnfnkmlnvypktnledfydkegyrdeefdk ddkgwtiirsemtkqpkgkimtskgmvlhmnrtrsttgyvirkisednkseideekk ypikmwnnkiiptqkindnklkneienfkffvqygsfknsddykedieynpnapsaq yhlnddynikqlrkrydiktktprrllmragadpksvsgyknleftfvkneeniyft dsinfnpkskgs
291.	vkhscklllisciflittffigcgfmnkddgketeikgnfnkmlnvypktnlenfydkeg yzdeefdkdkgtwivhskmviepkgkmesrgmvlfinnrtrtskgyfiivneiekdrkg rpinnkkkypvkmknkiiptkpsindklkneienfkffvqygnfkdkimykdgdisynp nvpsysakyqlsnneynvqqlrkrydiptkvpkllikgdgdlkgssvsgsknleftfien keeniyytdsvlfspsednes

292.	mrylkkvtiyslillitvsgcgnketeikgnfnkmlndmptknldefdydkegyrdeefdk kdkgtwivgstmtiepgkgymsrgmflyinrnrtrttkgyvyvrkttdskgrlkddckr ypvmehnnkiptkpiipndklkkeeiefkffvqygdfnklkdykdgdgsynpnvpsysak yqlsndnyvqglrkrydiptnqapklilkdgdlkgssigskseleftienkeennffs dgvgftpseddes
293.	mkhsskiivfvsflilitfiggcgfinkeidskeaeikgnfnkmlndmptknldefdydkeg yrdeefdkddkgtwiinskmivepkgeemeargmvlrinnrtrtakgnfiikriennkg ipdwkdkkypvmehnnkiptkqikdkklkkeeiefkffvqygmfnklkdykdgeisynp nvpsysaqyqlnnnydnvqglrkrydiptnqapklilkdgdlkgssvgykhlefvtven keniyyftdsinfnpsergn
294.	mrylkkvtiyslillitvfiggcgfinkeidskeaeikgnfnkmlndmptknldefdydkeg frdeefdkdkgdgtwiirsemktkpgkgnkimsrgmvlrinnrtrtakgyflideikddsg rpienekkyppvmehnnkiptkpiisddklkkeeiefkffvqygdfnklkdykdgeisynp nvpsysaqyqlnnndnnvqglrkrydiptnqapklilkdgdlkgssvsgsknlefvtven keeniifftdavqftpseddes
295.	mktkyprhqrllrslfastipfvfmvmiiglisfaiyiwvehrthghtyqgtqtelqri dkfhntfvqqqkqrhvrhvdlshtpdtitkmkrqllkqvhggpaillyidkqssgsfnnmye qltdttkmyliskryidfdkddttilkiymstplllmkkmsggssaliivdsydvltynnd rfssigqkyppqpgfmgmeslklshhahliiykdihetiedgiallvmgvllilvifg yisadmakrqsedieaivriddaknrhlgsyepklkxhseleeinnyiydlfesneqli qsieqterrlridqlkeierqfphflfntmqtiqyilipspkvaqvtiqslgmrlrysl rtashtvklaelsyiqyvaignrifddmiqlyidapedvqhtgikgmllqplvenaik hgrgseplkitiririktkrklhlvhdngigmepsphlervqslhhdvfdtthlglnhlh nraioqgytyrarhlhfsrshqgtlmcyqiplv
296.	vddvtkygppvdgdpiptsteiepfdkkrefdpnlapgtekvvqkgepgtktittpptknp1 tgekvggegetekitkqpvdei vhyggaeiktghkdefdpnapkgsqgttqpgkpgvknpd tgevvtppvdvtkygppvdgdpiptsteiepfdkkrefdpnlapgtekvvqkgepgtktit tpttknp1tgekvggegetekitkqpvdei vhyggaeikpgkhkdefdpnapkgsqgedvpg kpgvknpdgtgevvtppvdvtkygppvdgdxiptsteiepfdkkrefdpnlapgtekvvqk epgtkkittpptknp1tgekvggegetekitkqpvdei vhyggaeikpgkhkdefdpnapk gsqgedvpgkpgvknpdgtgevvtppvdvtkygppvdgdpiptsteiepfdkkrefdpnlapg tekvvqkgepgtktittpptknp1tgekvggegetekitkqpvdei vhyggaeiktghk defdpnapkgsqgttqpgkpgvknpdgtgevvtppvdvtkygppvdgdpiptsteiepfdkkre fdpnlapgtekvvqkgepgtktittpptknp1tgekvggegetekitkqpvdei vhyggae eikpgkhkdefdpnapkgsqgedvpgkpgvknpdgtgevvtppvdvtkygppvdgdxiptste iepfdkkrefdpnlapgtekvvqkgepgtktittpptknp1tgekvggegetekitkqpvdei vhyggaeikpgkhkdefdpnapvdsktevpgkpgvknpdgtgevvtppvdvtkygppvdg dsitsteiepfdkkrefdpnlapgtekvvqkgepgtktittpptknp1tgekvggegetek vktqpvdei veyqgttkaaepgkpaepgkpaepgtpaepgkpaepgtpaepgkpaepgtpaepgkpa epgkpaepgtpaepgkpaepgtpaepgtpaepgkpaepgtpaepgkpaepgtpaepgkpa esgkpvpepgtpaqsagapeqpnrmshstdnknqlpdtgenrqanegt1vgsllaiivgs1fi fgrrkkgnk
297.	atgaataaacagatttttgccttatattttaattttcttgatttttttaggtatccgt ttagtaataccagctttgcctgtttatttaaaagatttgggatttaactggttaggtattta ggattactagttgctgcttttgcgttatctcaaatgattatctgcgcgtttggtggtacg ctagctgacaatttagggagaagaaataatttatatgtataggatttaattttgttttcagtg tcagaatttatgtttgcagttggccacaatttttcggtattgtattgtatcagagattgatt gggtggtatgagtgctggttatggttaatgcttgggtgacaggttttaattagctgacatttca cgaagcatcaaaaagcaaaaacttttgctacatgtcagcgatttcaattcttggattc attttaggaccagggattgggtggtatttatggcagaagtttcacatcgatgccattttac tttgcaggagcattaggtattctagcatttataatgtcaattgtattgtattgattcagatccg aaaaagctacagcaagtggttttcaaaaagttagagccacaattgtcaacgaaaaattaac tggaaagtggtttattacaccaggtatttttaaacactgtattatcggtttggtttattctgca tttgaaacattgtatttactatatacacagctgacaaggtaaaatttaccacataagattatt tcgattgctatttcaggttggcgggtattttggggcacttttccaaactattttcttcgat aaatttatgaattttctcagagtttaacatttatagcttggtcattattatctcagatt gtgtgcttaattatttagtttttgcataatgactatttggtcaataatgttaatcagtttt gtgtgcttcattagttttgatgatgacgaccagccattcaaaattatttttcaattatt gctggagaagggcaagcgtttgcaggcggattgaacatcgacattcattagttatgggtaat ttcataggtccttttaatcgaggtgctgtattttgatgtacacattgaagcaccatttat atggttataggtgttttcatagcaggtgtgtgtattgttttaattgaaaagcaacataga gcaaaattgaaagacaaaatatg
298.	atgtcattttttatttttatttttacaatcagcttttatcaacagctattttctctatc attttcaatgaccaccaaacgcctcttagtagcatgtggatttgggtgcatgttcagtg acgattttaccaattaacggtagatttagagtttggaaaagttggcgcttcaattttggga agcttaatttttagctttaagtacatactatgagtcgcagataaacacgggtaatt atatttcattagtgccaggcattataccatttagtacctgggtggtgcagcttatcaagcgact cggttttttagtatacaaatgattatacaagtgctgtaaatacatttttagaagttacacg atttcagggtcgatttgccttgggtatatttagtttgcgaattcttatattcactatacaca cgattcaacaacactgtatggttaaaatcaaaggtaagacatatataaaaatcttacaacatg aataataagatt

299.	atgataaatgcagtagtaaatagcagtaattttaaagtattgctatggtttatgctgatta aacgtagttataagcttattatcagtgccgtagttgggtggttaatttcaggcatgagc attgaaaaagtataaaatgatttgggaaaaataatagtcagtggtgctgaggtagcatta agctatgctttattaggtggatttgcagcatttaatttcacacagtggtatcacagactat ttagtaggaaaaattataaatgcaattcacgctgaaaaatagtcagtggtcaagagttaa gtcaaaagtgaacaataatcattgcattattagctatgagatcatgagtcacaaacttaatt cctgtacataattgcatttccaattgtcatcccaccattgttaagtcgttttaatgac ttaaataatagatagacgttttaacggtttgattatcggttttgggtttatggtttccggtat gtgttattaccatattggattcgggtcaaaatttccagcaaaattatcacaagtggctttgca aaggcaaatcacccaattgagtttaatatgatttggaaagcaatgcttattccttcaatg gggtattattgttggcttacttaccgttttatatgtatcgttaaacacagtgtaatatgaa acacgtaaaaatttcagatagtgacaatgttacagagttaaaaccatatatcttaatatgta acaattgtagcaatactagctacatttttagtacaacacatttacagattcaatgattttt ggtgcaactggcaggggtactcgtatttcttatttccagtgcatataatttggtatgaatta gatgctaaagtttgttgaaggtattaaaaattatggcttatatttggtgtagttattttaaca gcaaatggatttggctggtgtaataatgctactgggtgatatagatgaattagttaaaact ttaacaagtattactggtgataataaattatttagcattatcatgatgtatgtgataggt ttaattgtcactttaggatttggatcatcatttgcacaacttccattatcgcatcatta ttcattccttttggagcgtcaattggactagatacaatggcatttaacgcattgattgga acagcaggtgatttagtgactcaggttcgcctgcaagtgattcaacattaggacaaact cggggattaaatgttgatggccaacatgatcatatacgtgatatactggtaccaaactc tggttttataaatttcccttaattgattttcgggtactattgctgctatggttacta
300.	atgaatcataatgttattatcgttattgcattaatcatagttgtcatttctatggttagct atgctcatttcgcttgtgctaggcccatcacttgcgatcgtgttgcgcatttagatgctg atttggttctcaatttaattggcagttatagcattatcagttatttattaaattataaatac atgatttgcgttattatgatgattggtatattagcttttttaggtactgcagttattctct aaattttggacaaaggttaaggtgattgaacatgatcaaaatcatactgat
301.	gtgaatagggaatcgtttaaactagttgtgttcatgctcaatttttagttgtagcagtagcg ggttgggtgcaaaaagatactgaagagaaaaactgaaatgacgacaataaaagatgaatta ggaactgaaaaaatataagaaaaatcctaaacgtgtgtgttattagaatatagttttgct gattattttagcagcattagatatgaacacctgttgggtattgcagatgatggcagcactaaa aatatacaaaagtcagtaagagataagattggggcatatgaatcgggttgatcttagaccg caaccgaatatggaagtgaataagtaaatataaacccgatttgcattgagatgttagc agacataagaaaaatcaaatcagaattgagcaaaattgctccgacaatcatgttagtttagc ggtacgggagattataatgcaaatattgaagcattttaaaccagtcgctaaagcagtaggc aaagagaagaagggcagagacgtctggaagacatgataaaattattagcggagattaga aagaaaaattgaacagagtagctttaaactctgcatttgcattcgggtatctcaagagcaggt atgtttattataaatgaagatacattttagggacaattcttaattaaaaattgggtattcaca cctgaagtcacaaaagacaaaactacgcatttgggtgaacgcaaggggtggtccttatata tatttaaatatgaagaacttgccaatatacctcaaaagttagtttttagcactgac ggaaaaacggacaaaaatagaacgaattcattgacctgcagtttggaaatcattaaaa gctgtgaagataacaaagtttatgacgttgaccgaataaagtgttgaatcaaggggg attatcgcaagtgaaggtatggcagaagatttagaaaaattgcagaaaaagcaaaa
302.	atgactggagaacaatttactcaaataaacgtccagtaagtagattaactgaaaaagtt ctaggttgggtatttatttgggtgatgttatttagtgcttactgtcattacagattttatagca cttggtttcatctcagtaataacacatcgtattgctaatttgaataatataaacaataat gcattttatccagcaattatttagctggaaatggctataatacaacacaaatttgtaatatgg ttacaaaaattgggtatattgggtatttactttattgttttgggttatttgcatttcaatt ttagctctcatatctatgaatataagaactcttgcaggtttcttatttcaatatcagca atttgaacgatttctttagttttacttatcgtttacttttaactcattccgattatttctt attatctgcgtatgatttattataagaaagataaagttgaaattggttgcgccacaatat tatgaagagtataacggaccgatttattgattatcgtgaacctgtgtatgagcgcccccac cgaagagattattatgatgtgcctaaatatgaaaaagaattggataaatcaaatact gtatatgatcaagaacaggaagagataaatatgacaaatttccataaacgtgcagttgaa agtgaatataatcatgatgagcgcataggaagaacctacagttattccagacaggtt aaatacaaaacaaaaagttactgaagaactaggtattgaagatgattggttattatgcagaa cctgaagtgtgacccaaaagaattgaaagcacacaaaagcgagaaaaagctgaaattaa gctaagaaaaaagaaaaacgttaaagcttataaccaacgaatgaagaacgtaggaaaaat caacctagcgagtttagtcaacgtcgaatgaattttgaagagcgagctcaatttcaaac aatgatatttctgaagaacgcaattcaagtgaaagttaaggacaaaaaagagcaagaa
303.	gtggaataacaaatttaagaaagtgaagaaaaaacgatttaaaattaaaaatgccaggt cgatttatgattttattcatttttaacggttgttgcagttatagcaacatgggttattcct gctggtgcatatttcaaaacttcttacgaaccttcatcccaagaactaaagatagttaac cctcataaccaagtgaaaaaggttccgggtacgcaacaggaactagacaaaattgggggtt aaaaattaagattgaacaatttaaatcaggtgcaatttaataagccggtatcaattccgaat acttatgaagatttaaagcaacatccagctggaccagaacaaatacaagtagcatggtt gaaggtacgatagaagcgggtcgatatcatggtattcattcttctactagggggacttatt ggcgtagttcaagccagtggttcttttgaatcgggattgttagctttaacgaagaaaaaca aaagggcatgaatttatgctaattgtgtttgtatcaatactaatgattatcgccgggaca ttatgtggtattgaagaagaagctgtacattttatccgattttagtccctataattata cgttaggatacagatttctatcgtttcagttgggtgccatttcccttgcagctctgtcgggt agtacattttcaactattaaaccgttctcgggtgtaattgcctctaattgcgctggtaca acttttacggatggcttgtattggagaataggtgcttgtattgtcgggtgcgatttttgtt attagttatttattttagtactgtaaaaaaattaaaaacgatacctaaagcgtcatattct tatgaagacaaaagatgcttttgaacagcaatggctgttataaaaagatgacgatagtgcc cattttactttcgtaagaagataatccttacattattttagtaccatttccaattatg gtatggggagttatgacgcaaggttgggtgggttccagttatggcttcagcatttttaata tttaaatataataatgtttattgctgggacaggttaaatctggattgggagaaaaagga actgtagatgcattttgtcaatgggtgcataagtttagtaggtgtatctttaattattggt ttagctcaggtatttaatttagtgttgaatgaaggtatgatttcagatacaatcttacac ttttcatctctttagttcaacatagtagtgaccattttatcatcgtattactattt attttctctgtttaggttttatcgtgccatcatcttctggcttagcggtattatcaatg cctatctttgaccactagctgatacagtaggtataccaagattcgtcatcgtttacgaca tatcaaatgttgaacatgcgatattcacattggttccgattttagtggtggcggtaggtgct ttgtattgattttcgggtggcgagtagtaattacgcaagtagtaatttatca



304.	<p>atgagcttttttaaacgcttaaaagataagtttgcacaaataaagaaaatgaagaagtt  aaatccttaacagaagaacaagggtcaagacaaattagaagatacacattctgaaggttca  acgcaggacgcaaatgatttagcagaaaaatgctgaagtgaagaaagccacgcaagttg  agtgaagcggattttgatgacgatggcttaatatcaattgaagattttgaagaaattgaa  gctcaaaaaatgggtgctaaatttaaagcaggactcgaaaaatctcgtcaaaatttccaa  gaacaattaaataatttgatagcgagatctgtaaagtagatgaagactttttgaaagct  ttagaagaaatgttaatcactgcagacgtcggttttaatacagtgatgacgttaactgaa  gaattacgtatggaagcacaacgacgtaatatcaagatactgaagatttgcgtgaagtc  attgtgaaaaaatcgtagagatttaccatcaagaagatgataattcagaagctatgaac  ttagaagatgggtcggttaaaatgctcattttaaattgggtgggtgaatgggtgggtgaaaca  acaacaatttgaaaaattagcttaccgataaaaaatggaaggtaaaaagtaattgttagct  gcggcgcatacttttagagcgggtgctatttgatcaattgaaagtttggggcgaacgtgtt  gggtgtagacgtaattagccaaagtgaaggttctgacccagctgctgttatgtatgatgcg  atataatgcccgtaaaaacaaagggtgttgatttttaattctgtgatccgcgtggacgttta  caaaataaaacaaatctaatacagaattagaaaaaagttgaagcgtgaattaatcgagca  gtgcagatgcgcctcatgaagcattactatgttttagatgctacaactggtcagaatgcg  ttgtcaacagctagaacatttaaagaagtaacaaatgttacaggtattgtattaaacgaaa  ttagatgggtacagccaaagggtgggtatcgtattagccattcgttaattgaattgcacatcca  gttaaatatgtagggttttaggtgagcaatttagatgacttacaaccatttaaccctgaaagt  tatgtctacggcttattcgctgatatgattgaacaaatgaagaaataacaaacagttgaa  aatgatcaaatgttaacagaagaaaggacgataatcatgggtcaaaa</p>
305.	<p>gtgttaaaaaagtggttaaatccaacgtcaaaacattctttgttataactttcatttagt  gtaattataacgcttattttattttctactcatatctatgattatattgtgaatgggtact  gttttttagcggggctggagatggattccgtcaaatgatgccatttcaaatgtatttgtat  gaacatctacgtagtttttctagtttatatgatgcatcggtttggattaggtggcgattat  atgaaggactatcatattatttctgctgacactttaaattgggtcaaaattttctatttc  attaaaaaggagaaacgggttggtatattttaaactcgacgacaatacatttttggcgaca  aaccacttattatggctatgatacagctatcataacatttgcgtgaccttctactta  tttaaaatattacactttaaacgctcagcaaatatgatcgctacgattttatcggcatg  tcaactgctggttatatactttaatttacttgggtcattttatggaaatttattatattta  tgcattatcgattcttgggttggaaagataatttcaacaacgcaaaatcggtattttc  attgttgcgatagccttaacactatttagcaatttttatttcagttattatcaagctatt  attatagggtgctactatttatcgactcattttcacttacaatatgacattgtctct  agaacacaaaaataatttgcgtcatatctgctacagttttgagtggttatcaagtgtat  tttgggtttattcactggcatttctgcgttttggaaaaatgacagaaagcaaaatcccaat  gttgatataccggttttgacaccacttgattatcattatttttcttttagcgatggatttt  tatattacgatttcaatttctactatcggttgattattgtcatttcaactgtatcggttt  tacttttatagacttttgcgaatagtaacatggatatttttataggttcattatcacag  tattcgcagctgcttttaattgggttttctatttccagaaaggcgttgggtgtatatctta  gcactatcatcaagtgtcttcttgcggattgtttattcaacatttatcaacattaaatatg  aaatatttttaatacagaacaatacccgatgcatcatcgcaatactttatgtattacta  tcacgcacacacccacttgcacttatagtaggtattatctctgctaattagtgcttgcggtt  attttaaaatttagtttatggcggtataaaaaattaaacggttgcaattatagttatatac  gttatgattcaacaaatcgctcattttagataacacaaaaacatggcaatcaaaccttat  caacaatcatatcaacggttgaaacaacatgattaccatagtaactatgtaaacagctt  ataaaaaagataaaatcaaaatgcaacaggctcatttaattgcattgattatgtcagac  tatgcattaaattcaccatttatatatcattataatggcatttcattatattctagtatt  tttaattggagacattttaaaatattatgacaagacactccaaattaatatgccaatcgat  aaaaacagcacttatagattacttggcaatcgctcaaaatttactatcactttggaatgtt  aatgatcgaaattagagtgaatcatgatgacaacttaccataggattttaaattaaagtct  gaacacaaagacaataaagttcggttgattcatttcaaaaaataccatccattatccaagt  gcacatattacaataaaggtcttttccaaataaagaattaaaatctccattagataaagaa  caagcaatgttgcaagggattgttttcaacaatttaaagatgttaatacacattttaaa  gccaataaaaaatttactatcagattcaacaattaaattaaatagtgagcgttgcaatct  cctacaaaacattttatcaagtttaacaaaaataatgggtgggtcaactgtacagttgcca  aaatcagtttctaatacaatttaaagatttgtattttgaaatggatttagaattactttcg  ccggtataagctcatgatgttaaagtgaattgaataacacagaaagaaataaaactcact  tataaatatcgacgcttgaacacccgttaacgatagcattaaagctccagatagaatt  agattatcatattgctaaggttaagtagtagtaaaatttaaaagggatatacggcggaagat  tataccacgcttaagacgcttcaaaattcattagaagctgtcaaggttagtaagacaaag  catggttatactattactaaaaataaaaaatcactcgggttatattgttttgcacacgca  tataatcaaggtatgaagcgacatcaggtgatcaagctttaaagttgaacaagtaaat  gggttatgaccggcattaaagcacttaaaataacaaagattcaattgagctatacc  ccacatactattatttacttataacaattactatatttggcattatattgtagtattatt  ttcagcagatgggcaagacaaaaa</p>

306.	<p>gtgCGTcaattggcacaagcaaaaaaagaatcgacagctaagaaaaaacaacatcaaaa  aaaaaacaatctgaggaaaaagaagaatgataatccgatacgttatgtcatagctatt  ttagtagttgtatatttggtgttgggtgttttccaattaggaataataggctgctaat  gacagcttcttaattatttttgggtacagtagatatttaacatatattttagtactc  ttagcaactgggttttattacatactctaacgtatttccataaaactagacgaacggctggt  tcgattgtattgcaaatgcattgtctatttgcacagcttagttttcattttaatagt  ggtatcaagctgaaagagaacctgtactttcttatgtgtatcagtcataccaacacagt  catttcccaaattttgggtggcgggtgtattaggcttttatttattagagtttaagcgtacct  ttaatttcattatttgggtgtatgtatttactattttattattatgctcaaggtgtatt  ttattacaacacatcaacatcgtagaagttgcaaaagtgcactggaaaaataaaaagt  tgggttgggttcatttaataaaaaatgtcggaagaacacagaaaaacaattgaagcgt  gaagaaaaagcaagacttaaaagaagaacaaaaggcagtcataatgaacagccacaata  aaagatgtgagtgattttacggaagtgcctcaagaaagagatattccaatttatgggcat  actgaaaatgaaagttaaagccagagtcacacagtcgaaaaaacagagtggtttgatgca  gagaatagttcgaataacatcgtaaatcatcatcaagcagatcagcaagaacaattaca  gaacaaactcataacagtggtgaaagtgaacacacttgaagaagctgggtgaagttacg  aatgatacgtgtatttgggtccacgttaactttacttaataacacgtgcaaaacaaaaagca  acatctaaagctgaagtgcaacgttaaggacaagtagtagagaatacattaaaagatttt  gggttaaatgcaaaagtgcacacaaataaaattgggtcctgcagtaactcaatatgaaatt  caacagctcaaggggttaaagttagttaaattgttaacttgcataatgatttgcatta  gcttttagcagcaaaagatgttagaatacgaagcgccaatacctggctgcttctgcagtaggt  attgaagtgccaaatgagaaaatttcattagtttccactaaaagaagttttagatgaaaaa  ttcccgctcataataaaactagaagttggattaggaagagatatcaggtgatccaatt  actgttccactaaatgaaatgccacacttattgggtggcaggatcgacgggtagtggttaa  tctgtttgtataaatgggtattattacaagtattttataaatgctaagcccatgaagtt  aaacttatgttaatcgatccgaaaaatgggtgaactaaatgtttataacgggaattccacac  ttatttaattccggttgttacaatactctataaagctgtcgaagcttagaataaattgtga  gctgagatggaagacgcttatgatttattccaacattcatcaactagaacattaaaggt  tataacgaaatttaaccgttaagcaaaatcaagaattagatgagaagcaaccagaattacat  tatatcggtgttatgttagatgagcttgcagatttaattgatggttagctggtaaagaagtt  gaaaaatgcgattcaacgtattacacaaatggcagctgcagcaggtatacatttaattgtga  gcgacacaaagaccttctgtggatgtaattacaggtatcattaaaaataatttccatct  agaatagcttttgcgtgtgagttctcaaacagattcaagaactatttattggtactggcggc  gcagaaaaagttaactgtgtaaaagtgacatgttatcagttggaatgggtgactcatcaca  acacgtattcaagggcggttttaagtgaaccaagaggtgcaagatgttgtaaatattgtga  gtagaacaacaacaggcaaatattgtaaaagaatggaaccagatgcaccagtggtataaa  tcggaaatgaaaagtgaagatgcttttatatgatgaagcgtatttgggttgggtgtaacaa  caaaaggcaagtacatttattgtacaacgccaatttagaattgggtataatagagcatct  aggttgatggatgatttagaacgcaatcaggttaatcgggtccacaaaaaggaagcaagcct  agacaagttttaatagatcttaataatgacgaggtg</p>
307.	<p>atggctgaaaaattacaaggggaactgagcaatcgccacatacaatattgcaattggc  ggtgcaattgggtacaggcttatcttaggtgctgggtcaaacgattgcattaacggccct  tcaattctattacaatacatcattataggatttattgttatttatgtttatgaggggttta  ggagaatcattatacagaatactgaatttaaatctttcgcagatgtaaccaatacatat  attgggccttttgcagatttgtttaccggatggacatactgggtctgttggattattaca  ggtatggctgaagtaacggctgtggcaaaatattgttagcttttgggtcccagaaattcca  aactggataaagtgacatttttgggtactgttatattatgtcattcaacctacttagcgca  agacttttccggagaattagaattttgggtctctcatcattaaaaatagcgacaattattgggt  ttaatagtagttgggttctgtcatgattctatttgcattttaaactcaattcgggcatgcc  agtttcacaaatctatatgaacacggcatattcgcataaaggtgcttctggattctttatg  tctttccaaatggcactattctcattttaggaattgaatgattgggtgttacagctggg  gaacaaaaagatccagttaaaacaattccaaaagcaattaacagtgtaaccattagaatt  ttaatttttacgttggggcgtagcggttatcatgtctattatcccttggcagcaagtt  gatcctgataacagtcacattcgtaaaaattattcgcatgtatcggaattccggttggctg  ggcttgattaaattttagtattaaacggctgctgcttcatcatgtaacagtggtatattc  tcaaatagccgtatgcttttccggtttatcaagtcacaacaagcacctccgaacttttct  aagacgaataaaataggcggtccacatgttgcaatctttgcttcatcagcattattactt  gtggcagcattactaaactatattttccagatggcagaaaaagatttacctatgtgact  accatctctacagtggtatttttagttgtatggggctctgattatcattgcatatatcaat  tatagtcgtaaaaacccagatctacataaaaaatgctacgtacaaactattaggtggcaaa  tatatgggctacttaattttgtattcttcaattttgtgttccgggttattatttattaat  gttgatacaagcgtgcaatttttatttccgatttgggttatacttttagcatttatg  tacttaagataataacgtatcgctgctaaatcaataaa</p>

308. atgaatttggtaaagaaaaataaatatagttataggaagtataaagtaggcataattctct  
actttaactcggaacagtttttattacttttcaaacccaaatgggtgcacaaagccttaactacg  
gataataatgtacaaagcgataactaatcaagcaaacctgttaattcacaaagataaagat  
gttgcttaataatagaggttttagcaaatagtgccgagataacacctaatactctgcaaca  
accaatcaagcaacgaatcaagcattgggttaatacataataatggtagtatagtaaatcaa  
gctacgcccaacatcagtgcaatcaagtagccttcagcacaacaaataatcatcacagat  
ggcaatacaacagcaactgagacagtggtcaaacgcttaataatagtagtgtagtcgaat  
aataccgcatataatgtaccaactaaaacaaatgaaatgggttcaggaggacatctaact  
ttaaaggaaattcaagaagatgttcgtcattcttcaataaaaccagagctagttgcaatt  
gctgaaccagcatctaatagaccgaaaaagagaagtagacgtgcggcaccggcagatcct  
aatgaacatccagcagatccagcggctgcagcggtaggaaacgggtggaaccagttgca  
attacagcgccataacgccaacactgatcctaataatgccaataatgcaggacaaaatgca  
cctaaccgaagtgtctgattgtatgacaatgggtattagaccaagtagcaaacggtctctgtg  
ccaacagtaaacggtgttataacttgccgggcttcacactaatcaatgggtggcaagta  
gggtgtgttagtcatgcaatggtaagaacgagcatgtttgattcaggagataataagaac  
tatcaagcacaaggaatgtaattgcattaggtcgtatcacatggaactgatcagaatgac  
catggcgcttttaattggtagtagaagcattcaacagtaaatccgaattctgaaatcaatc  
tttgaatttaatacaatgactactaaaacgggtcaggcgcaacaaatgtttattatcaaaa  
aatgctgataactaatgatacagattgtgaaaagactgttgaaggcggtccaactttgctg  
ttatttaaagtacctgataatgtgagaatctcaaaatcaatttgtacctaaaaatgac  
gcaataacagatgcgcgtggcatttatcaactaaaagatgggttacaatactatagcctt  
gttgactctatcggaactctattctgggtcacatgttttggtagaagacgaacaaatggat  
ccaacagcaacaaataataaagagtttactgtacaacatcattaaagaataatgggtaat  
tctgtggtctctctagatacaaatgactttgtatatacaagttcaattacctgaagggtgt  
gaatagtgaacaattcattgactaaagattttccaagtaacaattcaggcgtgtgatt  
aatgatagtgaattacataatgtagcagcaaatcgtgtgatacaaatcaaaagtagctgga  
ggaggtacagcaaacctccggcagcacttatgctgataaaaatactcgatttaagatat  
aaattacgtgttaataatgtgcccacaccaagaacagtaacatttaacgagacattaaacg  
tataaaacataacacaagatttctaatcagctgcagaagtcatactgtaagtaca  
aatccatatactatcgatcatcatgaataaagatgcattacaagcgaagttgacaga  
cgtattcaacaagctgattatacatttgcgtcattagatatctttaatgggtctgaaacga  
cgctcacaacagatttttagatgaaaatcgtaacaatgtaccattaaataaaagagttct  
caagcatatattgattcattaaactaatcaaatgcaacatagcttaattcgaaggtgtgatt  
gctgaaaatgagtttaataaaaaagttgacaaatggaagatttagttaatcaaaatgat  
gaattgacagatgaagaaaaacagcagcaatacaagttatcgaggacataaaaaatgaa  
ataattggtaataattggtgaccaaacgactgatgagcgttactagaatcaaaagatcaa  
ggtagacagaccttaagtggggatctgcaacacgggtgttaaaccaaatgctaaaaaa  
gcaattacgtgataaagcaacgaacaaagggaaatttatcaatgcaacaccagatgttact  
gaagacgagattcaagatgcactaaatcaattagctacggatgaaacagatgctattgatt  
aatgttacgaatgctactacaatgctgacgttgaacacagctaaaaataatggcatcaat  
actattggagcagttgttctcgaagtaactcataaaaaagctgcaagagatgcaataac  
caagcaacagcaacgaagacaacaaataaatagtaataagagaagcaactcaggaagag  
aaaaatgcagcattgaacgaattaaactcaagcaacacacatgctttagaacaaatcaat  
caagcaacacaacaaatgctgattgataacgccaagagagatggctcaaatgccaataat  
ccaattgctcctgtaactgttggtaagcaagctgcaagggatgccgtatcacatgatgca  
caacaacatatacgagagatcaatgctaatcctgatgagcactcaagaagaagacaagca  
gcaattgacaaagtgaatgctgctgtaactgcagcaaacacaaacattttaaacgctaat  
accaatgctgattgaaacagtaagacaacaaatgcgattcaagggaatacaagcaattaca  
ccagctacaaaagttaaaacagatgcaaaaaatgccatcgataaaagtgcggaaacgcaa  
cataactcagatatttaataataatgatgcgacgctcgaagaacaacagcagcaacaa  
ttacttgatcaagctgtagccacagcgaagcaaaatattaatgcagcagatcagaatcaa  
gaagtgcacaagcaaaagatcaggccacacaaaataatagtagtattcaaccggcaca  
caagttaaaacgggatactcgcaatgttgaataatgataaagcgcgagaggcgataacaat  
atcaatgctacaactggcgcgactcgagaagagaacaaagaagcgataaaatcgtgcaat  
acacttaaaaaatagagcattaaactgataattggtgtgagctctactactgcgatggta  
agtattagagcagatgcagtcattcaaatccggcagcttcaaccgcatgtaacgaagaaa  
caaacctgctacaggtgtattaaatgatttagcaactgctaaaaagcaagaaatattcaa  
aacacaaatgcaacaaactgaagaaaagcaagtggttttaaatcaagtggaatcaagagtta  
gcaacggcgaatttaataataatcaagctgatacaaatgcgggaagtagatcaagcgcaa  
caattagggtacaaaagcaatttaagcgttcagccaaatattgttaaaaaacctgcagca  
ttagcaacaaatcaatcagcattataatgctaaattagctgaaatcaatgctacaccagat  
gcaacgaatgattgagaaaaatgctgcgcatcaatctttaaatcaagacagacaacaaat  
attgaaagtatttaaacagcgaacacaaatgcagaagtagacaaagctgcgacagtagca  
gagaataatatacgatgctgttcaagttgattgtagtaaaaaaacagcagcgcgagataaa  
atcactgctgaagtgccgaagcgtattgaagcgtttaacaaacacactaatgcaactgac  
gaagaaaaagcaggtgctgtttaaatacaatcaacttaaaagatcaagcaatttaataa  
atatacaaaacaaacaaatgattcaggtagacacaaatacaaatcaagcggtaaatgct  
atagataatgttgaagctgaagtagtaattaaaccaaaggcaattgcagatattgaaaaa  
gctgttaagaaaaagcaacagcaaatgataatagcttctgattcaacagataatgagaaa  
gaagtgtcttcacaagcattagctaaagaaaaagaaaaagcacttgagctattgaccaa  
gctcaaacgaatagtcaggtgaatcaagcagcaacaaatgggtgtatcagcgattaaatt  
attcaacctgaacaaaagtttaaacagctgcacgtgaaaaaatcaatcaaaaagcgaa  
gaattacgtgctaaagatttaacaggtataaagaagcaacagcagaagaaagacaagtagca  
ctagataaaatcaatgaatttgaataatcaagccatgacagatattacgaataatagaaca  
aatcaacaaagttgattgatacaacaaagcaagcgtttagtagcattgtcttagtgacgct  
gacctattgttagagcagctgctagagatgcagtttagcaacaaatgaagctaaaaag  
cgcgaattgagcaagcgaacatgcgactgtagaagaaaaacaggtgtcttaaatcaa  
ttagcgaataatgaaaaacgtgcattacaaaacatcgatcaagcaatagcgaataatgat  
gtgaacgtgtgtgaaacaaatggcattgctacactaaaaggtgtacaacctcatattgta  
attgaactggaagcacaacaaagcaataaaagcaagtgcaagaaatcaagtagaatcaata  
aaagatacaccacatgcaacagttgattgaattagtagaagcgaatcaatttaattagcgac  
acactcaaaacagcgaacaaagaaatgaaaaatacaaatcaagatgctgctgttactgat  
gttagaaatcaacaaatcaaggcaatagagcaataaaacctaagtagaagcgttaaacga  
gctgcgctgtgattgattgaagaaaaataaaaaatcaactcgatgcaatccgaaataag  
ttggtactactcaagatgaagagatgttgctattgatactttaataaaaattgtaaat  
acaattaaaaatgacattgcacaaaacaaacgaatgcagaagtggaactgcgaactgagact  
gtggcaacgcgaacatcaaaagtgattttacctaagttcaagtttaaacagcagcgcgt  
caatctgttgggtgtaaaagcgaagctcaaaatgcactaatcgatcaaaagcgtttatca  
actgaagaaagaaagactagctgaacatttagtagaacaagcacttaatcaggctatt  
gatcagatcaatcatgcagataagactgcccagtttaatacaagatagttataatgctcaa  
aatattttcaaaaataaaccagcgaacacagtttaagcaacagcattacaacaaat  
caaatctgctacaaaataaaaatttaatttaataagcaataaacgaagcgacagatgaa  
gaacaaaattattgcaatagcacaagttgaaaaagagtttaattaaagctaaacacaaat

gctagtgacgtgactaatgcagatgtggcatatttattgcatgatgagaaaaacgaaatt  
cgtgaaatcgaaacctgttattaacagaaaggcgtctgctcgagaaacaattgacaacatta  
ttcaacgataaaaaacaagcaattgaagcgaatattcaagcaacggtagaagaaagaaat  
agtataattgacacagttacaaaaatattatgacactgctattggacaaattgatcaagat  
cgtagcaatgcacaagttgataaaacagcatcattaaatctacaaacaatacatgattta  
gatgtacatcctattaaaaagccagatgctgaaaaaacgattaatgatgatcttgacacgc  
gtcactgcttttagtgcaaaattatcgaaaagtaagtaatcgtaataaggctgatgcatta  
aaagctataactgctttaaaattacaaatggatgaagaattaaaaacagcacgcactaat  
gctgatgttgatgcagttttaaaccgatttaattgttcattaaagcgatatagaagcagta  
attactgaaaaagaaaatagcttactgcaattgataacattgctcaacaaacatatgcg  
aaattcaagcgatcgcaaccaccagaacaattagctaaagttaaagtatttaattgatcaa  
tatgttcagatggcaatagaatgattgatgaagatgacacattaaatgacatcaacaa  
cacacgcaattcatgttgatgaaattttagcaattaaattaccagctgaagcgacgaaa  
gtatcaccaaaagaaattcagccagctccaaaagtttgtacgcctattaaaaaagaagag  
acacatgaatcgcgcaaagttgaaaaagaacttccaaatacaggttctgaagggaatggat  
ttaccattgaaagaatttgactgattacaggtgcggctttgttagctagaagacgtact  
aaaaacgaaaaagaatca

309.	atgagtggttgaaatagaatcaattgaacatgaactagaagaatcaattgcatcattgcca caagcagggcgttaagaattacacctcaagacaagcaatattacgttatttaattttctca catactcatccaacagctgatgaaatttatcaagcactttcacctgattttccaaatata agtgttgcgacaatatataaacttaagagtggttaagagatattggaattgttaaagaa ttaacatatggagactcatcaagtcgattcgactttaatacacataatcattatcatatt atatgtgaacaatgtggttaagattgttgattttcaatatccacagttaaatgaaattgaa agattagctcagcatatgactgactttgacgttaacacatcatcgattggaatttatgga gtttgtaaagaatgccaagataaa
310.	atgagtgaaaaacaacaatttctcgattatataagaacaaataaatatagttatatcgaa atcagtcataagaattcatgaacgtccctgaacttggtaatgaagaataatttgcgtctcga actttaatagatcgtttgaaagagcatgattttgaaattgaaaccgagattgctgggcat gcaactgggtttatagcgacatatgattcaggacttgacgggagcagctataggtttttta gcagaatcagatgctttgcccaggattgggtcatgcttggtggtcataatcatttgaact gcaagtgttcttgggtgcaatttggtttgaagcaagtgattgaccaaattgggtggttaaagta gtcggttcttggatgtccagctgaagaagtggggaaaaatggtagcgctaaagcttcttat gtcaaggctggtgtgattgatcaaatagacattgccttaattgattcatccgggaaatgaa acttataaaaacgattgatactttggcagtggtatttagatgttaaattttacggaaaa gttgctcatgctctgaaaatgcagatgaagcgttaaatgcattagacgctatgattagt tatttttaattggtgtgacacaactacgacaacatataaaaagatcaacgtgtgcatggt gtgatttttagatggcgggaaagcagctaatattatccagactatacacatgctcgtttt tatactagagcaatgacgcgttaagaatttggtatatttaacagaaaaagtaaatcaaatc gcacgtggagctgcgatacagactgggtgtgattatgaatttggtcgaattcaaaacgggt gtgaatgaattcattaaaaacgcccgaatttagatgatttatttgctaaatatgctgaagaa gttggtgaagcagttattgatgatgatttttggttatggctctacgggtacagggaaacgta agtcatttgggtgccaacaatacatctcatattaaaataggatcagctaaatttagtagga catacgcataagatttagagaagcggctcgagtgtagatggtgtagaagcatttaattaaa ggcgctaaaaataatggcgttgatgggttagagtttaatacaaatcaagcgtttatcaa gacattattgaagagcatgcgcatttgaagggaatgggaag
311.	atgactacgaccttattattagctacattatttttagcgctcattattgttggggttatc aatttatttttaataagatcaagaaaaaaggcaaacgcccaaaaaaggaaacaacattt acgacacgctcaatcaaatcaatctaaatttaaagctagtgtatttagacaaaaacaactgat caatcgacacaacgtatgacgcatgaagagttgcgtgttgacaatcaagatgatcatagc caagttagcttaaatgggttacacaaggggtctgagaagagatcaagaagcattcactaat aataaggtatgaggaagcagttgctgctaaaaatcctgaaatcagaagaatataaagtgaat gaaaaaataaaaaaagaacataaaaaactttatttttggtgaaggtgttctacgcggttaa atatagcggcattattattcgggtatgtttattgcgattttaaccaaacattattaaat gttgctttaccaaaaattaatacggaatttaattttctgcgtcaacagggcaatgggtg atgacgggattcatgttagtaaacgggtatttttaataccaattacggcgtatctattta aaatattcatatcgaaaattatttttagttgcgttagtactctttacaattgggtcatta atctgtgcgatttcaatgaatttcccaatcatgattggttggtgacgtgtattacaagccatt gggtgcaggtgtactaatgccattaggttcaattgttattattacaatttatccacctgaa aaacgtggtgtgctgccatgggtacaatgggtatcgcaatgatttttagcacctgcaattggt ccaacattatcaggttatattgtacaaaattaccattggaatgtgatgttttacgggtatg ttcattatcgggattatcgctatttttaattgggttttgatgggttaagttatatcaatat acaacaaacccctaaagctgatatccaggtatcatttttagttagcattgggttttggtgct ttgttatattgggtttctcagaagctgggcaacaaaggttgggggttcagtagagatagaaca atgttttgcgatttggtattatctttattattctattcgtttattagagaatgaagaatgaaa tcaccaatgttgaatttagaagatttgaatttcccaacatttaccattaaacaacattatt aatatgggtgtaattgtaagtttatatgggtggtatgattttattaccgatttatttaca aatttacgcgggttctcagcattagattccggattgttattattaccgtggttctctaatt atgggtctctacaggaccatttgccaggttaattgttagatactatttggtttaaaaccatta gctacttttggtattgctgtaattgacttatgcaacatgggaattaaactaaattaaatag gtacaccatataatgacaatcatgggtatctatgtacttctgcttatttggtatggcattt ataatgatgccaatggttaactgcagctattaatgcttaccgggacgacttgcctctcat ggtaatgctttcttaaatacgatgcgtcaattagcaggctctatagggtacagcaatctta gttactgtaattgacaacacaaactacacaacacttatcagcttttggggaagagtttagat aaaacgaatcctgttgcacaagatcataatgctgtaattagcatcacaaatattggcgga gaaggcgcaatgaaagtgttactacaatttgtaataaaactagcaacgggtggaaggtatt aatgatgcatttttagttgcaacgatatttagcatcatcgcttaattttatggttattt ttacaaagtaataaaaaagcaaaagctacagctcaaaagtttagatgcagataatagtatc aatcatgaa
312.	atgattaaaaataaaatattaacagcaacttttagcagttgggttaatagcccttttagcc aatccattttatagaattttctaaagcagaaaaatagatagaagatcggccaaggtgca gaaatcatcaaaagaacacaagacattactagcaaacgattagctataactcaaacatt caatttgattttgtaaaagataaaaaatatacaaaagatgcccagttgttgaagtgcaa ggcttcattagctctagaacaacatattcagacttaaaaaaatatccatatattaaaaga atgatattggccattttcaatataatcagtttgaacacgaagactctaattgttgattta atcaattatcttcttaaaaaataaaattgattcagcagatgttagtcagaatttaggctat aatatcggcggaacttccaatcagcgccatcaatcgaggcagtggtcattccaactac tctaaaaacatttagttataatcaaaaaaactatgttactgaaagtgaagaagtcagaactct aaaggtgttaaatggggagtgaaagcaaatcattcgttacaccgaatgggtcaagtattct gcataatgcaatacttatttgcaagaccccaactgggtccagcagcagcagactatttc gtcccagataatcaactacctccttatttcaaaagtggttttaattccatcattttattaca acattgtcacacgaagaggttaaggtgataaaagcaggtttgaaatcacttacggcaga aacatggatgctacatatgcttacgtgacaagacatcggttagcgggtgtagaagaacat gatgcttttaaaaaacgaaacgttacagttaaatatgaagtgaactggaaaacacatgaa gtaaaaattaaaagcatcacacctaag

313.	atgcaatcaacgaaaacccaaacgaagcatttttctattttatttgcataattacgttaggc gtcatgaccgcttttggccactaactatagatatgtacgtaccatcattacctaagtg caagggtgattttgggtctactacatcagaaattcaatttaacattatcattcacatgatt ggctctgacatagggcaatttatctttggacctttatccgatgcttttggctcgcaaacgg attgctgtatccattttgatcatttttcaattttgggtatcagggttgctctatgttttggat caattgccatttatttcaactttacgattttatcaagggttaactggtggtggcgctcatc gtgattgcaaaagcctctgctggtgataaatttagtggcaacgcactcgctaaattttta gcatctttaatggtagttaatggcatcatcactattcttgcaccattagccgggtgatta gctttatccgttagcaacatggcggttctattttcacaaatttcaactatttgggactcatc atttttaattggcgctcgcttctcaattacctaataacatctaaagatgaattaaagcagggtg aatttttagtagcgctcattaaagattttggaagctctttgaaaaaacaggcatttattatt ccaatgctattacaagggttaacttatgtaatgctatttagttattcatctgcacgcca tttattactcaaaaattgtataatatgacaccccaacaatttagtatcatgtttgctgtt aacgggtgtaggttttaactattgtcagtcagtcagtcgcttatttagtagaaaaattacat cgccacataatttataactatttcaactattatacaagtggttaggtgttgccttaattatc ctgacacttaccattccatttaccactttgggtcttactcatcgcatcttctttaaattgtg tgtcctgtgacgtcaattggaccgcttgggtttcacaaatggctatggaagcaacaggt ggcagtggttaacgcatacagtttacttggcttattccaatttatcttaggtggcgctgtt gcaccatttagttggcttaaaaggcgaatttaatacatcaccatataatgattattatcttc attacagcattctatttagtcagtcacaaatcatttacttttaaaatgattaaaaagcaa catgtcgca
314.	atgatgtatggatatccagagaaatgggtggaaggtatgacaactggagaaggtatcgcg gcagaattacgcttaggcattgtgaatgggtcacatagctgaaggtacgttactcactgaa aatcaaatggcaagcaatttaattgtgagtcgttcgccaattcgagatgcatttaaatfa ttgcaacaaaatcaactcatcctaattagaagaatgggtgcacatgtgttgcgctttggg gaacagaagaagaagaatgtatgatttgcgactgatgttagagtcatttgcattttca agagttaaaaatcaagagcgactacatctgtaaaagaatgaagaacaacttgaaatg atgaaagtggcagtaaaatttgaggatgcagaatcatttaccgaagcatgactttgaattt catgaacatatacaagcatcctaactcatcaatattttaaactcattttggagtcattta aaacagtaaatgatggcactcggttttaacatccatgcgacaacgtatgaacagaacccg caagattttgaacgcatacatcataatcatcaagtggttattgatgcagtggaacaatac gacagtcaaaattttgaagaagcggtttcatttaaaatttcgacgatgttggtaaaatatt gaaggatttttgggtgaat
315.	atgggaagtttttcaataaaatagcacgaaaagaggatccggctatctatcaaaaataaa gatggtcattttaaagcgtacacttccgggtgcgtgatttcttagcttttaggtgtaggaaca attgtatcgacatctatctttacgctacctggcatttggctgcgagaacatgcaggaccg gocgttgcgttatctattcttactcgtcgtctattgttgcgttttagttgcatttacttat gcagaatggctgcgctatgccatttgcaggttcagcctattcttgggtcaatgtatta tttgggtgaatttttggatgggttgcgggttgggtctctattagctgaatattttatcgcc gtagcctttggtgcacaggtattctcagcgaatttaccgggacttgtgaaccaatttggc atcgaaattacctgcagcatatcaaatccatttggtaaaaatggcggttttatcgatatt attgctgtatcgcttattttttaaactgcattattactatcacgtggtatgtcgaagca gctcgtatggaaaatatttttagttatttttaaagtattagctattttttatttgcac gtaggttttaacagcaataaatgttagtaactatgtgccattttatccagaacacaaagta actgctacaggtgactttgggtggaaggcaacatatactggtgttccaatgattttt ttagcgtatattcggtttcgatttctatcgacgaaactcagcagaagcacttgatcctcaa aagacaatgcctagaggtatttcttgggttctttaaagcgttgctatcgtattatttattgct gtagcacttgtgttagttggtatgttccattactcacaatcagcaacaatgctgaacct gttgggtggccttactgcacaaagtggctatgggtgtttagcagctattgttcaagctatc tctgttatcggtatgtttacagcatttaattggtatgatgttagcaggctcacgtttactt tattcatttggacgtgacggcttattacctcatggttaagccacttaaacgacaaacat ttacctaattcgccactagttatacttactatttattggtgttttaattgggttctatgttc ccattcgcatttttagcacaatttaattcagcaggtacacttgttgcaatttatgttcgttt tcattagcaatgtatcgtttgagaagcggtgaaggtaaagatctaccaattcctgcattt aaattaccttttatctcgtgttaccagcaattacatttgttttagttattgctagttatc tggggatttaggattcgaagcgaattatacactttaatttgggttattggttgggtatcatc ctataattaaagtattggacttagacatttcaagaaaatgacgtagctgaataaccacca ccaaaa
316.	atgaatagtataatgttggttaacagtaaatggggctcattattattttcaattgta ggtttactcattgccaaaaagataaatccagttgtaggtatgacaatcacacttgctta ggggcaatgattttaggatataggtgacagatttgggtggatttttgcataaagggtta gatcaagtcatacaacgttgggtattattgtttatcttggcattattttcttggcatcatg aacgatagtgggtttatcaagccgcttgcacacgcttaatttaatgacacagggcaat gtcgtcattgtctgtgcaatgacagctttaaattggcacaatagcccaatttagatggggcc gggtgcggttaacatttttgccttctattcctgcattattacctttatataaagcgttaaat atgaataaatatttttagatttactattagcattaaagcgcggcgattatgaacatggta ccttggggagggtccaatgggtcgtgtagctgcagtggttaaaagccaaaagtgtcaatgaa ttatgggtatggatttaacattcaataatagggtttcattcttgggtattgttttgcg gtatatcttggattttaaagaacagaaacgtatcaaaaagcaatagagagaaatgaattta ccgcaaacacaagataatagatgtacataaatttagttgaagtatatgaacgagatcaagat gtaaggtttcctgtataaaggacgtgcaagaacaaaatcatggataaaatgggtgaatata gctttaacttttagctgttattctatcgatgttaataaatattgcgccacctgaatttgca ttcatgatagggttttgcgttggcacttgttatttaattttaaactcagtggtgaacaaatg gaacgatataagagcgcacgtgcggcaatgcatttaattgaggtgagtgattattgcagca ggatgtttttaggtgtactaaatgaaacgggtatgcttaaagcgattgcgaccaattta atcaaatgatttctgcagaagtaggacatacttgcataattattgtaggtttacttggc gtaccatttagatttactaactagcacagacgcttattatttgcgtgtgttaccgattgtc gaacaacacagcagggcaatttgggtgtaccgtctgtatcaacagcttattcaatgggtcata gggaatattataggtacatttgcagccattttcaccagccttattgggttggcaattgggt ttagcagagggcaaacatgggcagctatataagtagtgcattcttgggtttgggtgatttc gctatcgttatgtttagtaattgcaatgtttagtgggcatttgcagcatt

317.	<p>atggaaacacgggttaaataatcgtaagtttatactccctatcggttaggtctcttatt  tgggcacttacaccttttaaaccggatgctgtggatccaacagcatgggtatgttcgca  atattcgtcgcgacaatcattgcttgattacacaaccgatgccaatggggccgtctct  ataattggatttacaatcatggtactcgttggcattgttgacatgaaacggcgtcgcgt  gtttttggtaataatagcatttgggttaattgctatggcatttttctattcagagagattt  gtgaaaaacaggtcttggtagacgtatcgcaacttcatctcgtcaaatatttggtaaaaa  acatttaggttagcatattctatcgtcgtgtagatttaattctagcgcctgtacacca  agtaataccgcgcgtgctgggtggaatcatgttcccaattatcaaatcactttctgaatca  tttgggttcgaacccgaaagacggatcagcacgcaaaatgggtgcatctctgttttcaca  gaattccaaggtaatttaattactgcggctatgtttttaaactgcaatggccggtaacccc  cttgcaaaaaatttagcatctagcacatctaattgttcacattacatggatgaattgggtt  ctagctgcttttagttcctggacttgtttccttaattgtgttaccttttattattataaa  atttatccaccaactgtttaagaaacaccaaattgctaagagtgggctgaaatgaatta  gcgactatgggttaaaatcgcttttagctgaaaaatttatgattggtattttgtcgttgcg  ttaacactatggattgtcggaagtctcatctcatattgatgcaactttaacggcctttat  ggcgttagcattgttattattgacaggcgtcttaacatggcagacattttaacgaaaca  gggtgcttggacacattagtagtgggttctcagtagtagtgaattggccgaccaatataac  aagcttggattttatcttgggttaagtaaatccattgctacaagcttgggtggcttaagc  tggcctatagctcgtgctttaaattgttctacttctattacattacttatttggca  agttctacagcacatcagtgcgatgtatgcagcattactaggcgttgccatcgagcc  gggtgaccacattattcagtgcatatggttaggttcttcggtaacctatttagcttca  acaacacacatagtagtgggtccagcgcgattcttcttctcaggttagctgactcaa  aaacgttgggtggacaatgaacttaattaggtttcgtctactttattatctggattgg  ttaggatcactttggatgaaagtaattggtatattt</p>
318.	<p>atgaataaagtaattaaaatgcttgggttacgcttgccttctacttgttttagcagga  tgtagtgggaattcaataaaacatcatctgatacaaaagataaggaaacacttcaatt  aaacatgcaatgggtacaactgaaattaaagggaaccaaagcgtgtgttacgtatatt  caaggtgccactgacgtcgtctatctttaggtgttaaacctgttaggtgctgtagaatca  tggacacaaaaacgaaattcgaatacataaaaaatgatttaaaagataactaagattgta  ggtcaagaacctgcacttaacttagaggaaatctctaaattaaaacggacttaattgtc  cggtcaaaagttagaanaatgaaaaagttagcagcaatttatctaaatcgccaccaacagt  tctactgatacagtttcaaaattcaagatacaactaagtttaattggggaagcttaggg  aaagaaaaagaagctgaagatttacttaaaaagtacgatgataaagttagctgattccaa  aaagatgcaaaagcaagataaaagatgcagtcgcatgaaagcttagctgttaacttc  cgtgctgatacacaagaatttatgctggtggatgctggtgaaatcttaaatgattta  ggattcaaacgtaataaagacttacaaaaacaaagttgataatggtaagataattatccaa  cttacattcaagaagacattccattaatgaacgctgatacattttttagtataaaatca  gatccaaatgcgaagatgctgcatttagttaaagactgaaagcgaatggactcaagt  aaagagtggaaaaatttagacgcagttaaaaacaacaaagtatctgattgatttagatgaa  atcacttggaaacttagctggcggaataaaatcttctataaaacttattgacgatttatat  gaaaagttaaatattgaaaaacaatcaaaa</p>
319.	<p>atgataatcagttctatattggcgcagtaactttcgcattttatggctcagtcagttata  gcgattgctggactgacagtagtctgtgccattattgccaatttatatggcatcactacaa  aatctatcagtcgtagaaatcagtttggagtggtatagcgatttgcgtccagctgta  acgacgatgatagtcttcgcgatatgggggaagctaggtgataagatcagccgaaaaatgg  atgggtttaaagagcgttacttgggttggcgggtatgcttatttttaattggcattgtgtacg  acacattacagtttgtacttgtgaggttattgcagggaactatttgggtggttgtgtgat  gcatcaagtgcgtttgcgagtgacagggcgccagctgaagatcgtggaaggtatttagga  agactgcaaaagttcagtcagcgcaggggtctcttggggggccatttaattggcgggttaca  gcttcgatatagggttttagtgcttactgatgagtagtattgcccgttattactttattgtc  tgtattttcgggtgcattaaaattgattgaaacgacacatatgcaaaatcacaaacacca  aatattataaaaggtattcgcggttcaattcaatgtctattatgcacacacaaacatgt  cgattttatcgttggcgttttagcaaaactttgctatgtatggcatgctaactgcatta  tcaccacttgcctcatcagtgaaatcatacagcgatagatgaccgtagtgtgattggattt  ttacagtcgcgattttggacggcttcgatatataagcgcgcctttatggggacgctttaat  gataaatcatatgttaaatcagtatataatttggccagattgcatgtggtttagtgcg  atctgcgaaggttttagcgacgaatatagagtttttaattggcgtgcaagaataactcaagga  ttaacatattagtcattgattcaaaagtgcattgtttgttgcgtgaatgcgtgcatcaa  caacttaaaaggcacatttgggtggaacgacgaacagtagttagttgttgggtcaaatatt  ggcagtccttagtggcgtgcatcattacaagttatactacaccagctactacgtttatcgtt  atggcgtagtatttgcagtaagtagtttatttttaatttgggtcaaccatcactaatcaa  atcaacgatcacacattaatgaaatttatgggagttgaaacaaaaaagtgcaaaa</p>
320.	<p>atgaagcgattattcgtatgtagtgagttcaatataggttttagtagtttaagtcggatt  ctgttaattacagcattactaattaaaatggaatcacctggaccagcattttcaaacaa  aaaagaccgacgattataatgaattgttttaattattataagtttagatcaatgaaaaa  gacacacctaatttggcaactgatttaattggattcaacatcgtatatacaaaagacaggg  aaggtcattcgttaagacctctattgatgaattggcacaattattgaattgttttaaaagga  gaaatgtcaatttaggtccttagaccagcgtttataatcaatcagaatttaacgaaaaa  cgtacaaaaagcgaacgtgcatacagattagaccaggtgtgacaggactagctcaagtgtat  gggagagatgatacactgatgatcaaaaagttagcgtatgatcattattacttaacacat  caatctatgatgcttgatatttatcatatataaaaaaattaaaaatctggttacttca  gaaggtgtgcatcac</p>

321.	atggcacaacttaattcaagatagcttccttaaaattattcgcaagttacgccatagca acttatatttttagttatatttaacgagtgacattaaatcttttaagggttatgtggcagat acgttctatatttgctgaaacattgctaactgttttaaccatcattttaattattttta acaacgggaacaaacatggaagcatcatgacctatggcgacgtatcgctgaagtggtgta ttggtgatgacattaacaggcaacgtatttacattatattggttgaagttatagacgt taccacgtacatcgcaaatacatagttataacgggtggaagtcgtttatagcaaaact actagacatcgatttgcgattatcggttacttatttttagtctacatgctgacattatca attgtgtcacaatttacatttgatagacattggctactaaaaatcagttcaatgcactg ttacatggaccgagtcctagcctatccgtttggtactgatgatttcggtagagacttatt acacgctgtagttgtaggaacgaagctgacattttcaatttcaattatttcagtagttatt gcagttatttttggtgtgttactagggcattatcgaggttattttaatcatattgataat tlaaatgcgaaatttttagatgtagttgttgaattccatcattattgttagcgggtggca attattgcatcatttggagcaagtatccaaatttaattattgctttaagtatcggtaat ataccatcatttgcacggacaatgcgtgccagtggtttagaaattaaacgcatggaatat gtagatgcagcagctactggtgaaaacacttggaaatcatatggcgttatatttta cgaatgcgatttgcgctatgattgtacgtttttcatataataggtgtggtgtgattta acaacagtagtttaagtttccctaggacttgggtgtgcacgtgtagctgaatggggg aacattttacgtacggtagtaactacttggaaacgcacagtaatttagctattgtacct gggtgttggattatgttcgctgttttagcatttaattttataggtgtagcagtgctgtag gcactagatccaagaattcat
322.	atgaaacaatacatttggcttcgcatctaccactctttttattgaaaaagtggtatttg attatctattttactatttatattagcggcactccttatcattaaacgacaatccaacat gtaacagaagatgacaatcattttaatataggtgctgtagataaagatcaatcaagtga acgaatttaattcttaactctatttggtaaaggagtaaacctaggaaaaaacgtgagcatt aaagcatatgatgataagcaagcacatactttgttaaaaaacataaaacttcaaggctat ttgtgttttgataaaggatgacgaaggcattttataaacaaggcgaactaccaatttca gtataacatagatcaacaatccatgaaaagtgtcgtgctatctcagctaacagattct gtttaccaacgtcttatcgcatcaatgggtggcactcttagcttttcaagacttagcaccg aaagcatcacattctgcagatcaatggttatgactgatttgcgtgattacaggattaaac cgttcagggtgcatttaacttagaacgcatttattatagcagacgggcagttattatgca attacaggatttttaacaacggtattcatctttgcactatctttatttacagttttgaaa atgaactcaagatactgtattgaaagcgcgattgaaaatgtttcattttctaaagagcgt ttatttaactcctcgtagcttggattacatggttttatcactatgttattgagtagcgttgg gtgatttggatttgggttcagatttccgaatatctttgaattatataaattggccaacgtta gccattcatttaagctattatgttacctttttaactgtggttattactcatcgaactt ttaacaacagggttgtgaaatagttatgtaaagtcatttagctattgtcatcctgggtg ttatctgtttaaacaatccctacgattttttacaacatagcaaatgggtgttttcaat attcaacggttcgcagttgttaacaatacaattgttagaaattattttaaacaactacatt ttagaactgcaccctagtttctatcttagcttcacgcacttttgataaatttaatttagct gtattgggttggaggatcgtcaa
323.	ttgaaaaacaagttattatttcgggcctcatgtattttcactatttttggagccgga aatttaatatcccgcccatgcttggccatcacagcgggtcaaaatattgtggttggtagt ctagggtttgcccctacaggcatatttactccctttattactgttattgttggtagcatt tatgattgaagggttgaaagtgtaggcaatcgatatacatccatggttcgggtttattttt gctgtcgtgatttacatgtctatcggagcattttacgggtattccacgtgctgcaaatgtc cggtacgaaattggtacaagacacattttacctgtgcataaaccaatggactttaattata ttcgcagcaatctttttgcatcgtttactggatttagtttaaatccatcgaaaatcggt gataattttaggtaaattatataacacggttattactatgaatggtcgtctatttaagtatt gctgtcattttcaaccctgaatctgcactaagtgacctaaggataaataataaacacat cctttcatttcagggaagtttgggaaggctattttacaatggatcttgggtgctgcttagct tttccgtagtcattgtcaatggctataagtttaaaggcctcacagatcgcatgaaaatt ttaaaatattgtcgttttccagggtcttattgcagccatatttacttggaaatgatttacttt gcacttgcatacgttggggcatcaacagctccaggaaactttaaagatggtagacagata tgagctacaactcattacgattatttgggttcggttcggttaacctcgattttggaatgacg gttatccttgcagcctaaacaatgtagtaggactcgtcaatgcttgcgccaacttact aagaaacagctacctaagttttctataaaatttcgcacttattttctctatcataggg ttcttattttacaacacttgggttagaaatgattttaaaatttgcgtgctccattattgact tcaatatatcccgtgtcgattgcacttgtactcatatcatttgcatacatggttttagcaca tcagatttcagttggggcctatcgactcgcaactgttattacattgattatttcaatttta caaatactaaatagtttcaacttattacacggtgttattttgaaatcggtttatgatgta ccttttagcagatcgatttagcttggctgtaccattcatgctcttctgattatcgggt ttcataatcgatgtatttatagcgcctccgaacaagcgacaact
324.	gtgaaacattatttgactaaattttagcaaatgcttaataactgctgctatggtgtgtgac tttgggttactgaaaagtcaggcagcagacaacaagatttagtgatgatatagtggtg ataacgggattcgcaaatctgcactttctaataattcgatattcgaaatgacaataagcagaaa cgaattgagcaagtggttaagtgacgttaagaaattatcgcttgaagataaagtgaaggt aatgctgtcaaatcagatgtgagaagcttgaagatgcaaaagcgaatgataatcaaaaa gatcacctttcggcaattaacgaagtcatttaattgcttatgaagagaaattggctagttaa gatgcgggtttctaaaattaaactattgcaacagcaagtcgatgctaaagatgctgcgatg acaaaagcgattaaagataaaaaaaagcgaattagaatctttgaacaatagtttgaat cagattttggacaagtaatagaacagtgatttcgcaattatgacgcaaatcaatatggacaa attgaagtcgcatattacaacttagaattgcaattcataagtcaccattagatacggca aaaggttcacatgcttggacaacttttaaatcaaatattgatcatgctgataaaaaaagt aatcagctctgcaaatgatcaataccatgtatcacaatttaattgtagtgcgttagagaaggcg attaaagctatcgacgacaatcaatttgcggatgctgatgctgcgcttacacattttata gaaacttggccgtatgttgaaggtcaaatccaactaaagacgggtgctttgtatagcaaa attgaagataaaataccattatataaagtgtatttagacgaacataataaagcacatgtg aaagatgggttagtagatttaataaaccaaattaaagagggttgggtggccatagttatagc ttcgtcgtatgtgattatctttttacgtgaagggttagaaggttggtaatttgaattg acattgactaccatgacgcgttaattgaaagataaagaaaggactgcaagtggtgattgggt gggtgcaattgcccagcttgcactgagttattcttagcaattacgtttttagaactttta gggaattagtggtcatttctcgtgaaagtattggaagcgggttaggtatcgttgcggtcata tcaattgtttatcgttgggttgggttgcacaaacgttcaaatgcaaaacgttggaaatgac atgatcaaaaatagtgatgctaatgcgatttagtaattggtaatttgggtattgttagcgacg attgggttaatatctgttgcgtgaaggtgctgaggttatcattttctatatggggatg atagggtgagctagcgacaaagattttattattgggtattgcttttagctatcgtttatttta atcatctttgcattattatttagatttagttaatttaacattttctatatatttt agagttgttcgcatctttatttttatttgggttcaaaatgcttggcgtaaggtattcaa aagttacaattatttaggtgcgacgcaagacatgttattgaaggattcccaacgattaac tgggttgggttttatccaagttatgaaccattgtagcacaaggtgcttatattatggtg gttgcattcttaattcttaatttaaaaa



325.	mnkqifvlyfniflfligiglvipvlpylkdglgtsgdlgl1vaafalsqmiisppfggt ladklgkkllicigililfsvsefmavghnfsvmlszviggmsagmvmvgvtgliadis pshqakaknfymsaainsgfilpggiggfmaevshrmfytagalgilafimsivlihd kksstsgfqlkqlltkinwkvitpvlitlvlsfslsafetlysttadkvnyspkdi siaitgggfgalfqiyffdkfmyfseltfiawsllysvvllilvandywsmlisf vffigfdmirpaitnyfsniagerqgfgaglnstftsmgnfigpliagalfdvhieapiy maigvslagvvivliekqhraklkegnm
326.	mlfylfhftisfistvlsfii fnapkrllvacgfvagaiawtiyqltvdlefgkvgasflg slilglmshtmsrrykrpvii fivpgliplvpggaaqatrfvlvsnidytsavntflevtl isgaiafgilvseillylytrikqlygkikgktykksynmnnrv
327.	minavvialvilmimlclcrlnvvisl fisaalvggliagsiekvinvfgknivdgaeval syallggfaalisysgitdylvgkiinahaensrwsrvkvvtiiallamsimsqlli pvhiafipivippllsifndlkidrrligliigfclcfpyvllpygfgqifqgqilqsgfa kanhpiefnmiwkamlipsmgyivgliliglyvyrkpreyetrkisdsdnvtelkpyiliv tiavilatlflvtftdsimifgalagvlvffisraynwyladakfvegikimayigvvtl angfagvmmatgdidelvktitsitgdnkl fsiimmyviglivtlgigssfatipiasl fipfgasigldtmalialigtasalgdsgspasdstlgptaglnvdgqhdhirdtcvnpf lfynipmifgtiaamvl
328.	mnhnviiivialiivvismlamlirvvlpgsladrvaldaiglqlmavialfsillniky mivvimmigilafilgtavfsk fmdkgkviehdqnhtd
329.	mnrnivklvfmililvvavagcgqkdteektenttikdelgtekkmpkrvvvleysfa dylaadmkpvgiaddgstknitksvrdkigayesvgsrqpnmviskikpdliaadv rhkikiselskiaptimlvsgtdynaniea fktvakavgkekegkrlkhdkilaeir kkiegstksafafgisragmfinnedt fmgqflikmgigpevtkdktthvgerkggpyi ylmeelaninpkvmlatdgktdknrtkfipavvkslkavkdnkvdyvdrnkwlksrg iasesmaedlekliaekak
330.	mtgeqftqikrpsvrltekvlgwlcwvmlilvltvitmfialvlsfnntsianlentlenn afiqqilagngynttqfviwlngiawaiivfivcllisflalismsnirilsqfllisa ivtipvlviltlilpilffiiammlfirkdkvemvapqyeyengpiydyrepvyerpq pkddydyvpkyekeldksntvydqegeqrdkydqfpraveseyndherteeepsvlrsga kykqksteelgieddyyaepvdpkelkaqqkrekaiekakkekkrkaynqrmkerrkn qpsavsqrrnmfeerrgiynndiseernssevkdkeqe
331.	mentinesekkrfkklmpgafmilfiltvaviatwvipagaysklsyepssqelkivn phnqvkkvpgtqgeldkmvklkieqfksgainkpsipntyerlkqhpagpeqitssmv egtieavdimvfilvlggligvvgasgsfesglalltkktkghefmlivfvsilmiiggt lgeieeavafypilvpi fialgydsivsvgai flassvgstfstinpfsvviasnaagt tftdglywrigacivgai fvisylywyckkikndpkasysyedkdafeqqswvlkdddsa hftlrkiiiltflvlpfpmvvgvmtqgwwfpmasafliitiimfiagtgkslgkeg tvdafvngasslvgsliiglarginlvnegmisdtlhfssslvqhmgsplfiilvlf iffclgfiyvpssslavlsmplfapladtvigiprfvityqfgqyamilflaptglvmt lqmlnmryshwfrfwpvvaflvligggvilitqvliys
332.	msffkrldkdfatnkeneevkslteegqgdkledthsegstqgdandlaenaevkkprkl seadfdaddglisiedfeeieaqgmakfkaglekqrnfgeqnliliarykrvdedffea leemliltadvgnfntvmtlteelrmeagrrniqdtedlrevivekiveiyhqeddnsaem ledgrinlvimvgvngvgktttigklayrykmegkkmmlaagdtfragaidqlkwgerv lcvieseqsegsdpaavmydainaakngvdilicdtagrlqkntnlmgelekvkrvinra vpdapheallcldatggnalsqarnfkvntvgtvltklldgtakggivlaimelhip vkvylgqeldldqpfnpesyvyglfadmieqneeittvendqivteekddnhgsk
333.	mlkklwlnsvkqffvifisviltlilfsthiydyivngtvfsgagdgfrqmmpfcmly ehlrsfsslydasfglqgdyngklsyyslsplmwlfnfikigetvgifnpttthfwpt nqlinamiraiittfvvtfylfkilhfkrseanmiatilygmstvviiyfnfwsfygnllyl lplsilgleryfqqrkigifivaialtlfsnfysyyqaiigcyylrlylftykydivs rtqklicvisatvlsvssvfglftgisaflendrkqnpnvdpfltpldyhyfffsdgy ytisiltivallsfklyrfyfyrlfaivtwilfigelsqyfdasafngfsfperrwvyl alsssalcglfighlstlmmkyilirtipvciaaillyvllsptphlailvgiillivlav ilksflwrykklvtavilvlvimiqqilvildnnkmaikpyqgslstkqhdysnyvnl ikkinqatgsfnridymsdvalnsfiihyngislyssi fngdilkyydktlqinmpid knstyrllnrgnllslmwvndrirvnhddnlpvgfkiksehkdnkvrihskntihyps ahitnkvfnskelkspldkeqamlggivsnnikdvntfhkanknlisdstklnsaawgs ptkhlilqvkqngnltvqlpksvsnqfkdllyfemdlellspdkahdvkvneytqernklt ykyrrrvtpvtirikapdrirlslpkgyrvnlkgygedyttlkdasnslavkvsktk hgytiktlnssgyvlpvtaynqgmakatgsgdqlkveqngvmtgikapknitkiqlsy pnyyylilititfigiicsiiftrwarqk
334.	mrqlaqakkkstakkkktskrtnsrkkkndnpiyriavilvvlmvlvgfqlgiigrli dsffnylfgysryltyilvllatgfityskripktrrtagsivlqiall fvsqvlvfhfns gikaerepvlisyvysyqshshfnpfgggvlgfylllelsvplislfgvciitillcsvg ltnhghrevakvalenikawfgsfnekmsernqekqlkreekarlkkeqkarneqpgi kdvsdftvepgerdiplyghtenesksqsgpsrkrvfaenssnvinnhqdqqeqt eqthnsvesentieeagevtnvsvyvppltilnqpakqkatskaevqrkgqvientlkdf gvnakvtqikigpavtqyeiqpaggvkvskivnlhndialalaaadvrieapipgrsavg ievnpkeislvsllkevldkfpsnnklevglgdrdisgdpitvplnephllvagstgsgk svcingiitsillnakphevklmlidpkmvelnvynigiphllipvvtvnpkhaagalekiv aemerydylfghsstrnikgynelirkngeldekqpelpyivivideladlmvavagkev enaigrirtqmaragihlivatqrpsvdivitgiiknipsriaafavssqtdertigtgg aeklllgkgdmlyvngdssqtriqgaflsdqevqdvmyvveqqqanyvkemepdapvdk semksedalydeaylfvveqqkastslqrqfrignrasrlmddlernqvgipgkqgskp rqvldlndndev
335.	maeklqrelsnrhiqliaiggaigtgflgagqtialtgpsilltyliigfmlfmfmrgl geiliigntefksfadvtntyigpfagfvtgwtvfcwiltgmaevtavakyvsfwfpeip nwisalfcwlillsfnllsarlfgelwfsiikiatiiglivvgfvmilfafktqfgha sfntlyehgifakgasgfmsfmal fsvgiemigvtagetkdpvktipkainsvpiri llyfygalavimsiipwqgvdpdpnsfvkl faligipfaaglinfvvltaasscnsqif snsmrlfglssqqgappnfsktnkygvphvaifassallvaallnyi fpatkvtyvt tistvlflvwglliiayinyrknpdhknatyklggkymgyli fvfiffvfgllfin vdrraiyfiwfillafmylrykriaksnk

336.	mmllkknksirkkykgifstligtvlllspnngaqaalttdnnvgsdtnqatpvnsgdkd vannrglansagntpnqsattnqatnqalvnhnngsi vngatptsvqsstpsaqnnhtd gnnttatetvsnnannndvsnntalnvpktknngsgghltlkeiqedvrhssnkpelvai aepasnrpkrrsraapadpnatpadpaaaavngggpvaltapytpttdpnannagqna pnevlfsddngirpstnrsvptvnnvnnlpgftlinggkvvgfshamvrtsmfsgdnkn yqaggnvialgrihgtdndhgdngfngiekaltvnpnselifeftmttkmgqgqatnviik nadntndtiaektveggptlrlfkvpdnvrnlkigfvpkndaitdargiyqlkdgykyysf vdsiglhsgshvferrrtmdptatnnkeftvttslknngnsgasldtdnfvygvqlpegv eyvnnslltkdfpsnsgvdvndmvtvdaanrvitiktstgggtansparlmpdkildlry klrvnnvptprtvtvfneltlyktytqdfinsaaeshvstnpytidiimkdkalqaevdr riqqadvytfasldifnglkrraqtildenrmvplnkrvsqayidsltngmqhtlirsvd aenavnnkvvdqmedlvnqndeltdeekqaaigvieehkneiignigdgqtdddgvtrikdq gigtlsqgdtpvvpknakkairdkatkqreiiinatpdytedelqdalnqlatdetdaid nvtnattnadvetakngintigavvpqvtthkkaardainqatatkrrqnsnreatqee knaalnelqtatnhaieqinqattnadvdnakgdlgnainpiapvtvkvqaardavshda qghiaeinanpdatgeergaaidkynaavtaantnilnannadvvegvtknaiaggigait patkvtktdaknaidsaetqhtntifnnndatleeqgaagqllldqavatakninaadtnq evaqaqdggtqnvivipqatqvkttdtrnvvdnkareaittninattgatreekqeaivrnt tiknraltdigvtsttamvnsirddavnqigavqphvttkqtatgvlnldlatakkqeing ntnatteekqvalnqvqdelatanninqadtnaevdqaqqlgtkainaiqgnivkvkpa laqinqhynaklaeinatpdatndeknaaintlnqdrqgaiesikqantnaevdqaatva emnidavgvdvkvkqaardki taevakrieavkqtpnatdeekqaavnginqldqainq inqngtndqvdttdtngavmaidnveaevvikipkaideiekavkekqgqidsldstdek evasqalakekelaaidqaqtnsqvngaantngvsaikiipetkvpkpaarekingkan elrakingdkeataeerqvaldkinefvngamttdi tnnrtngqvddttsqaldsialvtp dhivaraardavkqyqaeakkreieqaeatdeekqvalnqlannekralqndqgaiannd vkrvetngiatlkgvqphivikpeaggaikasaenqvesikdtphtatvdeldeanqlisd tlkgaqgeientngdaavtdvngtikiaeqikpkrkraaldsieennknqldairnt ldttqgderdaidtlknivntikndiaqknktnaevdrtdetdgnidniklvpkvqkpaar qsvgvkaeaqmalidqsdlsteeerlaakhlvegalmqadqinhadktaqvngdsinaq niiskipattvktatalqgqigniatnkinlikanneatdeeqniaiaqvekelikakqqi asavtnadvayllhdekneireiepvnrkasareqlttlfnckkgaieanigatveern silaqlqniydtaiaggidqdrsnagvdktaslnlqthldlvhpiikkpdaektinddlar vtalvqnyrkvsnrnkadalkaitalklqmdelktartnadvdavlkrfnvalsdieav itekensllridniaqqtayakfkaiatpeqlakvkvldqvadvgnrmedatindikq htqfi vdeilaiklpaeatkvspkeiqpapkvtcpikkeethesrkvekelpntgsegmd lplkefalitgaallarrrrtknekes
337.	msveiesieheleesiaslrqagvritpqrqailrylisshthtadeiyqalspdpfni svatiynnrlrvfkdigivkeltygdsssrdfdnthnhyhiiceqcgkivdfqypqlneie rlaqhmtdfdvthhrmeiyygvckecqdk
338.	msekqgildiyetnkysyielshriherpelgneiefasrtlidrlkehdeieteiaigh atgfiatydsldgdpalgflaeydalpglghacghniigtasvlgaiglkqvldigggkv vylgcpaeeggengsakasykvagvidqidiailmihpgmetyktidtlavdvldkvfygk sahasenaadalnaldamisfyngvaqlrqhikddqrvhgvildggkaaniipdytharf ytramtrkeldilteknvqlargaaigtgdcyefgrigqngvnefiktpklldlfakyaee vgeaviddffgygstdtgmvshevptinhphikigsrnlvghthrfreaaasvhgdealik gakimalmgileitngdvvygdiieehahlkgngk
339.	mtttfiisvialliiivgvnlfliirsrkkgkrqqkqegqftrqsnqskfkasdidkttd qstqrmthelrvdnqddhsqvslnqytkgsekdqeaftnnkdeevaaknpeseeeykvn ekikkehknfi fgegvsrgkilaallfgmfialnqtltnvalpkintefnisastgqwl mtgfmnlvgilipitaylfnkysyrklflvalvltfsgliscaismnfpmmvrvlqai gagvmlpgisviiitlyppekrgaamgtmgiamilapaigptlsgylvqnyhwnvmfygm fiigiiaailgfvfwklyqyttnpkadipgiifstgfgallgyfseagngkwgsveiet mfaigifiilfvirelrmkspmlnlewlkftftltiinmvmlslyggmllpiylq nlrgfsaldsglllpgslimgllpgpfagklldtigitlklpafgiavmtyatweiltnm dtpymtimgiylvrsfgmafimmpmvtaainalpgrlashgnaflnmrqlagsigtail vtvmttqttqhlisafgeeldktnpvvqdhmrelasqygggegankvllqfknklatvegi ndafivatifsiialilclflqsnkkakataqkldadnsinhe
340.	miknkiltatlavgliaplanpfieiskaenklidigggaieikrtqditskrlaitqni qdfdvdkkynkdalvkmqgfiisrtytdlkkypyrkmiwpfqynislktdksndvl inylpknkidasavsqklgyniggnfqsapsigsgsfnysktsynqknvytevesqns kgvkwgvkansfvtpngqvsaydyqlfaqdptgpaardyfvpdnqlppliqsgfnpsfit tlshergkgdksefeitygrmdatyayvtrhrlavdrkhdafrnrvtkyevnwktthe vikksitpk
341.	mqstktktkhfsfllliltlgvmtafgpltidmyvpslpkvqgdfggttseiqltltstmi glalgqffifgplsdafgrkriavsililiflvsglsmfvdqlplftrfifgltgggvi viakasagdkfsgnalakflaslvmvngiitilaplagglalsvatwrsiftitilivali ililgvasqlpktskdelkqvfnssvikdfsgllkkipafilpmlilqgltyvmfysysasp fitqklynmtppqgfsimfavngvgliivsqvvalleklhrhilliiltiigvvgvalii ltltfhlplwvlliaafflnvcptvisgplgftcmeertggsgnassllglfqlilggav aplvglkgefntspymiliiifitailvslqiiyfkmikkqhva
342.	mmgyypekwegmttgegiaaelrlgivnghiaegtlitengmakqfnvsrspirdakl lqqnqliqlermgahvlpfgeqekemydlrlmesafsrvknglerlpivkemkkqlm mkvavkfedaesftkhdfehetlikasnhylnsfwshlkpvmmalvltsmrqrmmqnp qdferrihnhqvfidavegydsqilkeafhlndddvgkdiegfwln
343.	mqsfnnkiarkedpaiyqmkdghlkrtrrvrdflalgvgitvstisiftlpgivaahagp avalsfllaaivaglvafyaamaampfagsayswnvlfgeffgwgwallaeyfia vafvasgfsanrlglvkipigelpaalsnpgftnggfdiaaavilltalllrgmsea armenilvlkvlaiilfivgltaivsnvyvpfipehkvatgdfggwggiyagvsmif layigfidsiaansaaldpqtktmprgilgslsvaivlfiavalvlgvmfhyssqyannaep vgwalrqshgsvaaivqaisvigmftaligmmlagsrllysfgrdglpsswshlnkdh lprnalvltiigvligsmfpaflaqlisagtlvafmfvsalamyrirkregkdipapf klplyvpvpaitfvllvfwglgfeaklyltiifvlgilysyglrhskndvaeyhp pk

344.	mnsdnmwtvmglliiisivglliakinpvgvmtiipclgamilgysvtdlvgffakgl dqvinvwmifaiiffgimndsglfpkplvkrllimtrgnvviucamtaligtiaqlnga gavtflispaillplykalnmkylilililalsaaImmvppwgppmarvaavikaksve lwyglipiqigfilvmlfavylgfkegkrikkaierneipqtqddidvhlkvevyerdqd vrfpvkgrartkswikvmtaltlavilsmliinappafafmigvslalvinfksvdeqm erlrhapnalmmaaviiiaagmflgvlnetgmkaiaatnlikvipaevgpylhiivglg vpdliltstdayyfavipiveqtagqfgvpsvstaysmvigniigtvfvspfspalwlaig laeanngtyikyaffwiwgfaivmliamimgivti
345.	mentvkyrkfilpivvglliwaltfpkpdavdptawymfaifvatiiactgppigavs ligftimvlvgivdmktavagfgnnsiwliaaffisrgfvktglgrrialhfvklfgkk tlglaysivgvdlilapatpsntaraggimfpikslesfsgskpdkgsarkmgafvft efggnlitaamfltamagnplaqlnasstsnvhitwmnwflaalvpglvslivvpfiyk iypptvketpnaksuaenelatmgkiaekfmigifvvaltlwiwgsfihidatltafi alalillltgvtwgdilnetgawntlvwfsvlvmadqlnklgfipwlsksiatslggls wpivlvililfyfyshylfasstahisamyaallgvaiaagapplfsalmgffgnllas tthyssgpapilfssgyvtqkrwmtmllilgfvviiwiglslwmkvigif
346.	mnkvikmlvvtlaflvlagcsnsgnksdndkettssikhamgtteikgkpkrrvtly qinatdvavslgvkpvgaeswtgkpkfeyikndlkdktivggepapnleeisklpdliv askvnekvydqlskiaptvsttdtvtfkdkdttklmgkalgekeaedllkkyddkvaafq kdakakykdawplkasvvnfradhtriyaggyageilndlgfkrnkdlkqvndgkdiq ltskesiplmadhi fvvksdpnakdaalvkktesewtsskewknldavknnqvsddide itwnlaggyksskliddlyeklniekqsk
347.	minqsiwrnsnfrilwlsqfiaiaagltvlpplpiymaslnlsvveiqlwsgiaiaapav ttmiaspiwgklgdkiskrkmvmlrallglavclflmalcttpqlgvflvrllqglfggvvd assafasaeapaedrgkvlgrlqssvsagslvglpiggvtasilgfsallmsiavitfiv cifgaklietthmpksqtpninkgirrsfqcilctqgctcrfiivgvlanfamygmaltal splassvnhataidrsvigflqsafwtasilsaplwgrfndksyvksvyifatiacgcsa ilgglatnieflmaarilqgltyasaligsvmfvvnachqqlkgtfvgttmsmlvvvgii gslsgaaisytptattfivmgvfvavsslflicstittngindhtlmlklwelkqksak
348.	mkrlfdvsvsiyglvvlspillitallikmesppgaifkqkrtinnelfniykfrsmki dtpnvatdldmstsyitktgkvirktsidelpqlnlvlgkemsivgprpalynqyeliek rtkanvhtirpgvtglaqvmgrdditddqkvaydhyylthqsmldmyiiktkniivts egvhh
349.	maqlnskiasklklfasyaiatyilviltalnlfkgyvadtfyiaetllivltiiliil tteqtwkhhdwrrivevilllmtltgnvftllmfvsirryqtsqihsyngwesfirkt trhriaiigllilvymtlslivsgftfdttlatknqfnallhgpslaypfgtdddfgdrlf trvvvgtkltfssisiiisvviavifvgvlgtiagyfnhidnlmrlldvfvfaipslllava iasfgasipnlialisignipsfartmravleikrmeyvdaaritgentwnliwryil pnaiapmivrfslnigvvtlttsslsflglgvapdvaewgnlirtgsnylthesnlalvp qvcimfvvialafnfigdavrldalprih
350.	mktihlfriyhsfllkkwyliiylfillaallitlttiqhvteddnhfnigvvdkgdsse tkliinsigksgnlgknvskayddkqahtllkhhklqgyfvfdkgmtkafykqgelpis vytydqqsmksvvlsgltdsvyqrlmrsmggilafqdlapkashtsdinvmtdllitgln rsgafnllepihlydtgssyaltgflttvffalslftvikmngdvtlkarlkmfhfker lliirtltitwftmlswivgvvwlvsfipnifelynwptlaihlsyyvtfliilwlliel littgllnsiskvilaivilvlsgltiptiflqhiangvfniqpfavvtnqlleilnnyi lelhpsfylsfialliinlavlvwryrq
351.	mkkqviiisglmlfslffgagnlifppmlgtagqnmwigmlgfaltgillpfitvivvaf ydegvesvgnrihpwfgfi favviysigafigypraanvayeigtrhilpvhnqwtlii faaiffavvywislnpskivdnlglklltpilllmvallsiavifnpesalsapdkyith pfigsgslegyftmdlvaalafsvvivngykfkgltdrmkilkyvcfsgliaaillgmlyf alayvgastapgnfkdgtdiltynslrlfsgfnglvfgmtvilacitctciglvnacatft khhvpkfsyki falifsiigflfttlglemlkiaavplltliypvsialvlisfanmfst frfswayrlatvitliisilqilnsfnllhgvilksfmmlpladidlawlvpmlfaiig fliidvfirrpkgatt
352.	mkhyltkfvamlitaamvcsfgilksqaaeqgsisdvysvitdaksalsnnsiendnkqk aieqvvsavkklslsdnsesnavksdvkrledakandnqkdtlsqtksliaeeeklsk dagskikllqqgvdaakdaamtkaikdknaeleslnslngiwtstnetvirnydangyqg ievallqlriaihkspldtakvshawttfksnidhvdksntsandqyhvsqndaleka ikaiddnqlsdadaalthfietwpyvegqigtkgdalytkiedkipyyqsvldehmkahv kdglvdlngikevvghsysfvdvmiiflreglevllivmtlttmtrnvkdkkgtasvig gaiaqlvlslilaitfvletlqnsgilresmeaglgivavilmfivgvwmhkrnsakrwnd mknmyanaisnngnlvlatiglisvlregvevifymgmigelatkdffigialaivil iifallfrfivklipiyifrvlsififimgfkmilgvsigklqligamprhviegfptin wlgfypsrepiiaaggayimvvailifkfk

353.	atgaagaatTTTTCTAAATTCGCACTTACAAGTATTGCCGATTAACTGTGGCAAGTCCT TTAGTCAATACGGAGGTTGACGCTAAGGATAAGTATCAGCAACTCAAAACATCGATGCG AAAGTAACCAAGAATCTCAAGCAACTAACGCATTGAAAGAGTTACCAAAATCTGAAAAT ATAAAAAGCATTACAAAGATTATAAGGTCAGTACTGAAAAAGATAACAAAGGATTT ACGCATTACACATTGCAACCGAAAGTGGGCAACACGATGCAACAGACAAGAAAGTAAAA GTTCAATACGAATAAAGAGGGTAAGGTAGTTCTTGTCAATGGTGATGCTGCTAAGAAA GTTCAACCTACGAATAAGGTAGCGATAAGTAAAGAAAGTGCCACAGATAAAGCTTTCGAA GCAATAAAATTGACCGTCAAAAAGCTAAAAACTAAAAAGTGATGTCATCAAAAACCAAT AAAGTTGAGATTGATGGAGAAAAAATAATATGTTTATAACATAGAAATTATTACAAC TCACCAAAAATCTCTCATTGGAATGTGAAAATTGACGCTGAAAGCTGGTCAAGTGGTTGAT AAATTAATATGATCAAGAAGCAGCTACTACAGGTACAGGTAAGGTGTACTAGGTGAC ACGAAACAAATTAATATTAGTGTGACGCGTGGTTATACACTACAAGATTAACTCAA CAAGGTACACTTTCAGCTTACAATTACGATGCGAATACTGGTCAAGCTTACTTAATGCAA GATAAGATAAAAATTTGTTGATGATGAACAACGTGCGAGGTGATGCAAAATTATTAT GTAAAGAAAACGTAGCTATTATAAAAACTTTCGGCCGAGAAATCATATGATAATCAA GGTAGCCCAATTATTCAATCGCACATGTAATAAATCTCCAGGTCAAGATAACAGAAAAC AATGCACTTGGATTGGTGATAAAATGATTACGGTGACGGTGATGGAGCTACATTACA CGGTTGCTGGTGCGAATGATGTTGTTGCACATGAAATTACACATGGTGTAACACAGCAA ACTGTAATCTGTTTACCGTTCTCAATCAGGTGCATTAAATGAAAGTTTTTCAGATGTA TTGGTTACTTCTGATGATGAAGATTCTTAATGGGTGAAGATGTTTACACACCTGGT TAGGGCGGAGATGCTTAAGAAGTATGTTAATCCAGAGCGTTTTGGACAACCATCTCAT ATGAATGATTGTTTATAACAAATCTGACAACGGAGGCGTACATACGAATTCAGGTATT CCGAACAAGCAGCTTACAACACAATCTGATGATTGGTAAACAACGTTCTGAACAAAT TATTATAGAGCGTTAACTGTTTATTAACTTCAATCTGATTCCAGATGCCAAAGCA TCATTACAACAGCAGCATTTGATTATATGGCAGCGGATTGCTCAACAAGTAGGTCAA GCATGGGACAGTGTTGGCGTG
354.	atgtctaaacatagtgtacgttagttattatgtttttaataactttattgcctattttt caatatcaagcttctgcacatcgacttttagaaaaatcaacaccacaacagcaagggtt ataaagcaaaaccagaagcaatcaagtttagagtttaatgaacctgtgaacaccaaatac tcgagtgtagccttatttgatgataaaggtaaaaagattaaagaccttaaaccaataaca actggatgggtctcagacagttgtattttcatctgagcaaatgtttaatggcacgaatact attgaatggcatacgggtatctcgggatggacatgaagtcggagatacgtttgaattttca gttggaaaagtggagctaaagatg
355.	atgaaaaaaatcaaaacaatctcgacattggtagctggacttggtatagcatttctaggt cacacaacacatgcagatgcggctgaaaaatacaaatcaacaacaaagtacataaactat agtacaactgaagtatcattttcaattcaggaatttatatacttctggccaattgtact tgaatgtttatgataaaactgggtgaaaaatcggatcaacatgggtggaatgcaaatagc tgggcaactgcagctcaagcagcaggattcactgtaataatacacctgaagaaggtgca attatgcaatcatctgaaggtgcttctggacatgttgcttctggtgaaggtgcaataat tatgggttcttactgtatcagaaatgaactatgatgggtccattcgcataaagcaca cgaacaatctctgccagtgaagcaagttcatataattacatccacctgaat
356.	atgaaaaaaatcgctacagctacaattgcaactgcaggaatcgctacttctgcatttgca caccatgacgcacaaagcagcagaacaaaaataatgatgggtacaatccaaacgaccttat tcataatagctacacttacacaatcgatgtgaaagtaactaccactacacttggaaggt aactggagtcagatcggttaataacttcatataaactataataattataaactacaac tactatgggttacaataactatagcaactacaataactacagtaattacaacaattacaac aactatcaatcaaaacacacgcaatcacaaagaacaactcaaccgactgggtggttaggc gcaagctattcaacatcaagtagtaattgttcacgttacaacaacttctgcgccatcatca aacgggtgatctttatcaaacgctcgctcagcatctggtaacttatacacttcagggtcaa gttacatattatgtatttgacagagtaggtggcaaaatcgggtcaacgtggggtaacgca aacaactgggcaaacgctgcagcagcttctgggttacacagtaaaacaattcactgctaaa ggtgcaacttacaacgctcacaaggtgcatacggacacgtagcatacgttgaaggtgta aacagcaatgggtcaatcagagtttcagaaatgaactacggtcagcgtgcaggtgtgtc acttcacgtacaatctctcggagtcagctgctcatataactatattcac
357.	ttggaaagataaaaaagctccagtaaatgaagactttttaaattacatcaaaaactatgcc gatgtaagaacatacctcttccaagacgtaagatggcctcggtgttccacacttctaaa actgcaattgatgatgtctcacaagaaaaactaaatacttggttacgaaaaactgataag ttttacgtgaattattatcgagcttctgaagacttatattacaagctcgggtgaatcgt agcttacttaattactttattgatatggctcggttctattatgtgattgattccattgttt agcagcgatagtagatgagcaaggagaaagtcaaaaaagacctctctaaaatatcttta caacttaataaaatgaatttaaaacatgagttagctaaaaattacaacacatgtgtactt gaagatattttcttgggttatgaaatcgaagataaaagacaattacttcatgttaaaactt gatccaaagtattgtaaatagttgggtatctctgacgggagtatacatatgctttcaac ctgctctattttgacggttaatttagatttattaaaaacattcccagaagagtttcaaga gcatatttagaacgctctattgataagcaagctgacttaaatgggttattccagacttc actaaatcagttgtttcaaaatgaagacgattcactattttacctccattttct acaatgtttgaacccctattagatttaaacgattataaaaagcttaaaaagctggagct aaaattaaataactacatgttattacatacaaaagtgccaatgcatgataatgcaataaa gattatcaagctgataaacttcgcaatctcagctgaggcaatggactacttcagcgagtta gttaacgaaaacttaccagatgaattgggtctatcgtttccctatgggaagttaaccct attaaattagatagagatgataaaactgataaggtacttgaagctactagagatgtttat aacgcttctgggtgtttcttcatttatctttaacaatgataaaaacttactgggtggtta acttactcagttcgttaagatgagttattcgttaattatttctaccgacaagttgagaga tggttaaatcgtaaaatcagatattggcaatctcgtagccaaaaatcaatggagaatttct ctattaaatgtaactggaatgagtgagataacttacttagagcaattaaactaagctcgt acattcgggttctcagttagaggacgtattgctgcattacatgggttagattaccataca ttactcaaaagtttagaattagaaaaaatatcttagatttagatactaatttaatacct cttgctagttctcatactgggtgtttaataactgctgttgaacaaaacaaaggaaaaata gaagactcgggtggcagacctactaaagaaactaaagacttgctctgtagcggacaagca aatcgtgactctagtaattctcgagacaaaactctttagaaggtggtagactaataatgaa

358.	gtgggagctgctgaatcattactgggattacaattttgtcagtggtcagcatgctcaa gctgctgaaatgcacacatcatcatcagattcttaacgaacagtcacacaaacagaaacaa gtgaaacaaagaagatcaaacatttatcttaccagatttgaatcaagaggttgagaca gcgagccaatcaaagactagtcagagaaatcaatctgtatgggcaatgtacaaaaaagagt aatcaaatcaacaaagatcaacacaaacgtcaccatttaattgacaaaaaacaatttca atgggacaacaatcaaaagacaatcatgttaccocaaatcaagtcaggtacatcatcca aaaaggccaaaatcaagatgataaagggaacaaacagctttaaagataatcaacactcaaaa acagagaactcaactcaactactcaaaacaaaataatgatcaagattcatcagatataaagg caacaccattctgatcaaacactcaagactcatcttcaaaagggaacacaaacctcaaacatca cagctctatagaagatagagataaaaacagtaaaacaaacctcttctaaagttacacaaaaa ggttaacacaaaaactgtataaaacagtttaaaacaaatcaaaaaagcaaacatcatcttaact taccaccgctgttgtaaatcaaaaacaaacttaaacatcatcaacttacttgcgcgaagct caataataaaaatcaatccagctcgtgttctgtacatggattttagtggtttagctcgttgaa gatgcatttcagcatgtaccacaaattattgggggtggtactaaaataaacgtgaaacagaaga cttacaataataggttaccaggttcacgaagcaatgttaggggcatcttagcagcaattat gaccgtgctgttgaaactgtattattattataataagggtggaagagtagattatgggtgcagca catgctgcacaaatattggtcacaagcgttatggcagaacatataagggcatcatgctgctgat tggggaacagggtataaaagatacatcttggttggacatagataggggtgccaacatgcacgc ttgatgggaacatttttaagaanaatggaaatcaagaagaataagattatcaacgctcaaatat ggctggtacggtatccgattttatttaagggtggacaagataaattgggtgctcagctactact acattaggaacgctcctcaatgggcacacctgctgcagataaacatagggtgcgactaaatt attaaagatacaaatataagaattggaaaaattgggtggaactaaagcgtcgatttagaa ctagggtttcttcaatgggggtctcaaacagcaacctaaatgaatcattgctgaatatgcga aaaactgataagcgaatagtaaaagtttggggagactgaagatcaggtctgaaatgatttaaca actgctggagcgaacaaagtttaaacacaaatgacgacattgaactcctaattgctctataca tcataatcagagtgctgcacacatactggaccattaggcaatgaagtgccgaatattaga caattcccactattcgatttaacaagctggtgtgataggtggagatgataaaaaatgtc agagtaaatgatgcatagtagacctggtctcttcttccatcacatcaagtgatgaagcattt aagaaggtaggtatgatgaacctagcaactgacaaagggatcttggcgaagtgcagaccgcta caaatgatgtgggacatcttagatttagtcggcttagactactgactatataaagcgaact ggagaagaatttaggtcaattctatatagtagtatgataaataatattgtgaaagtgcgaag tagatgggtattcacagtaag
359.	mknfskfaltsiaaltvasplvntevdakdkvsatqnidakvtqesqatnalkepkse ikkhkydkyvtdekdngkfthtylqpkvgntypadkevkvhtnkegkvvlvngdtdakk vqptnkvaikesatdkafeaikidrgkakmlksdviktnkveidgkmlkvyvnieiitt spklshwnvkliaetgqvvdklmikeaatgtgkgvlgdtkqininsvsggylqdlitq qgtlsaynydantggaylmqdkdknfvddqragvdyananyketydyvknctfgresydnq gspilislahvnnfqqgdnrnaawigdkmlyvgdgdgrtftalsgandvvaheihthvgtq tanlvyrsggalnesfsdvfygidddflmgedvrytpgvvgddlrmsnperfgqps mndfvtnsdnggvytnsigipnkaayntirsigkrseqllyraltvyltsnsdfqda slqgaafdllyvgdglagvgvgawdsvgv
360.	mskshatlvimflitlpiqfyqasahatlekstpqggvkvikdkpeaiklefnepvntky svvtlfddkxgkikidklpigtgwsqtvvssseqlvngntntiewhtvsadghevgttfe vgkvrlkm
361.	mkkiktistlvaglgiaflghtthadaaennnqqgstynysttevsfnsngnlytsqgct wyvydktggkigtgwmaanswataaagaagftvnntppegaimqsssegafghvafvesvnn dgsitvsemnydgppfaistrtisaseassynynih
362.	mkkiaatiataglatfafahhdgaqaeeqnnndgynpndpysysytytidaegnyhytwkg nwspdrvntsynynnnynnyyvgynnsynnnysynnnynnnysnnqsgtrcttptggly asytsssnvhtvttsapssngvlsnarsasnglytsqgcttyyvfdrvggkigtgwma nnwanaarsgytvnnsapakgailqtsqgayghvayvegvsngsirvsemnyghgagv tsrtisasgaassynynih
363.	ledkkapvneadflnyiknyadvrniplsrrkmaslfhtsktaldvdsqeklnwlrkpd fyvnielskdllyksgyrsllnyfidmarfyvvidplfssdsksmekvkkldlksil qlnkmklhelakiyktcvledi ffgyeiedkdnyfmlklpkycklvgisdpmtyafn lsyfdgnldllktfpeefgraylersidkqadlnwfpidftksvfkineddptlppfs tmfepilidndyklklkagakinnymlhkvkpmhndankdyqadnfaisaeandysel vnenlpdeigsivpmevnpikldrdtdkvlcatrdvynasgvssffindmnsktg tyevrkdelfvinfyrgverwlnrkirygnivaknqr:isllnvtgmsedtyleqltksq tfgsvrzdriaalhgldyhtlsqslennildlntlplasshtgglntaveqtkgki edsggrptketkdlsdsgganrdsnssetksleggdtnne
364.	vgvvsii tgi t fvsqghagaemctqsssdnsneqsqqteqvehkedthlsyelngeget asqsktsqensqsdgnvqkksnqigqds tpslndqkqtsmeegqskdnhtvnsrqdtytp kggnqddkkgkqkfkdngqstehqpntnqnndqgdsdkkqhsdqtqdsdskgtqpkqs qslredrktvkqpskvhigntktktvtknqkqtsl tpsrvkskqtkhinqltaga qyknqgvvvfvhgvfvlvgedafsmypnyvggtykynvkqeltklgyrheanvayfssny dravellyyikggrvdvgaahaakyghkrygrtyegimpdweppgkkihlgvhsmggtir lmehfllrngneqleidyrgvqvggtvsdlfkhgqdmvstittlgtphngtpaadlkgstfk ikdtnirigkigtktaldlelqfsgwqfkqgpnesyayekr:anskwetedeqavndlt tagaeklngmttlnpniivtysygaatttgp:gnevpnirqfplfdltsrvigddknkv rvndgi vpvvssllhpsdeafkkyvmmmlatdkgiwqvrpvqydwldhldvlgdtdtdykr geelggfymssnnmmlkveeldgitrk
365.	tcaataagggtgctttctaaagaatttttctccccatgtccaatctataaataaattctt gttaaaaaatgcgcacacaaacattctcattcgattatgcataaaacaggtttgtgtaaat tccattattgtcgatcaaatgattggaaactcgtgttgccttcgcaccatgcataaaaa tccgcttcatttttgcgaccattttatctgtcgatatttaggtttgaaagcttggtatgag gtttcaggatctactgttcattaaacataaa
366.	ctgttgaccatttggtccttttgcacacaaagtcgaattgatacttgcgcagttgccaat caggaatttaacatttggtacgaaaaatggactcacacgctcttgggcctttatccatgaatt gtttatgtgcaatttcaaatgtttccataccaccgataaccagaaccaatccataacccga ttcgatctgcagttatttcat
367.	gatgcacctttaggtctaatacctggtgttacttttaaaaatgatgtacctaacttttca gtacaatacagcatttcaagaggtgaacaaacacgccatctaaacacagctgcatttgtct aacttggcataa
368.	tacatacaaacactatggtttaccatttttcttaccatcaagtgattatcatatcaccgggt tgtgcaggtgaaatattgtgataaaaatgttttaaaagtttttctgcgcgataaaaacaaatg cctgtgataatccttttcttagcagtaaacagctcctgttcttcagcaaatcgacgcact ctactcttttccatctcccaattggaacacatcacttttgaagattttt

369.	cgtttcgcattctcatcatattctaataatggccaatctgtcaccataagaagttaatt ttgtttcatcgattaaacctaatcttttagctaatttgacacgtaatgcacctaaactt tgtgcaacgacatttggtttgtctgcaacaacattactaagtcaccagcttcagcacca gtaatgtaagtaattgtttcaacattttctgtttcaagaagcgtccaattggacctgtc aaacctcttccacaactttaaccacgctaactcttttagcacca
370.	cgtcaacgctcctgtccatgtgtttccaaaaataataatccacatgggcaatataatcat caatatcaacatcactacgtaacgctagcaaatgctttt
371.	atgaatgaagcatcctaatttaattcctaaccatgccaatgaatccaaagccgcaactaaa atagcaagattaagccgccaatcactggtgctggtatatacaaatcgttttaaaaaatta acg
372.	attctatcagccgattatccacacccgcatattaaacaacacatcgattcttccaaac tgttccctttatgtcagacacaagctcaccactgtgtgctgcttgcatatccacatta tacgecttcgcatgtcaccattacttttaattttatcgacagctcctcgataccgcttca gctatgtctaccgccaatacatacgcaccttat
373.	cctggcgctattgtttcagggtccgtattctgttaattcattaatcggtatcttttgaatc tcttcttttgggtcacctttactaataaataactccagtttaattggttttttagtgggt ctggttaattgtctctcacccttttctccttctctgttactttttctgctcctggtgct aaatccggattaaattacgttcttcttgaatggaatctctcaacttttttctaat tctgttatgtttttggcgcttctgtgttaaagtaaaactctgaacctttcaagtcagtt ctcatccagcatttgcatattatccct
374.	ttactaacattttatgtgtttaaactacgatgacaaataaataatagctaatactttt aaaataactaaaataatttccatagagctgcttccgacataaccagtgatagtaataat gcagtttaataaataacgatagcagcaataatcgcataaaaccgccaattgtaccaa ggatttgataatgctgcaggtaattcgatgccaattggtttcacaagtcgcgtaaatc gctgagaatcctgatgcaacaaggctacggcgataaaatattcagctaataagagcccaa ccggcaaccatccaaaaaattcaccaataatacattgaccaagaa
375.	gatgtgttgaaactgagttcaatttaattatgtttttattatacactttttgacatat tttttaaatgaagatgcaagatttttaacatttctgtagctgttcttttttcatc tttcaaatgcttaataaaatcaaagccaggtcgccctttagccaatgcttccatcacatc ataccaatccgaaccgacttgttgatatatttttgcga
376.	tctatcattgttaataactgtatcttaagtgcataaaagttcgactagtgtgaatttcaatt gctactacttttttaaacgtcgctcggtattttcaaaaatacgtcgcgtaacttttca atagcttgtgcagatgtacgttctgaaacgcctatagccaagacatctttagataaaaaca agttcatcgccgcttcaatattgaatgggcaatctcgatctaaccagattggaatattc gcatcttttaaatctagga
377.	gaagtcttggccattcccttgagtaaacatgaagcccgccatctgctcctgtgtatt accttgggtgtgtttgttactggaacagtaattgttaaagtctttataaaatctatttt atcattatattctaa
378.	sircfklmfsphvqsinkslvkncttilirlcikpvcvnsiaasmignpvcpsihalk sasfcdhficrylgkawyevsgycvint
379.	llhhlvlhlslqlilaqlpyqeltlvrkmdshvlglyplivyvqfmfpyhryqnqsihr fdlqyfh
380.	daplgllpgvtfkndvpnfsvnirlsrgeqttpskpaafanla
381.	yikplclpiflpssviiispgcagkycdknvlfkffspikqmpvèsfflavtspcssairrt slfsmspignitfesc
382.	rfassysnngqsvthkkfnfvssikpnsanltrmapklcattfglstnltkspasap vnvsnvstfsvskkrpiggvvpkpssttlthanlap
383.	rqrpvhvfpknnphggynhgyqhhyvtlanaf
384.	mneasnliitmpneskaatkiaikippitgagigirfkkt
385.	ilsaalstpallnntsilpnscfmsdtksttccslalstiyafalsplllilstvsdtas amstantyapy
386.	pgaivsgpyvsnlignsvissfgsplliitpvnffsvgvvifvfpfcpslvtfsvpga ksglnlrslngisstffsnsvifvgasgvknsepfksvligpfafip
387.	liltfiavkptmntkiantfkitkfsiraasdiprdnnavnkitiaaisikppfvpn gfdnaagnsmpigftsprkfaenpdatkataikysanraqpathpknsppnlttqe
388.	dvklssiklyvfiihfltyfllnrmrrfltlmlafffiqmlnkikarspfscfhhi ipirtdlliyilq
389.	siivntvskcikvrlvgisiattflnvacgfskirranfsiacadvrsetpiaktsldkt ssspsilngqsrnqigifasinlg
390.	evlaiplskheapaicsccitlvvcywnsnckvfikiyfiif
391.	cgttgacaaagctgaatgttaaaaatgcggatccgccaagcaatgactgcaatccaacaa tctgatgacacaccacacataaataaggaagaagccacatgaatggcagctgcaaaag aaattcggttaaaaaagaatattgtaatgatgcatgctgtaaa
392.	rctklvknadppamtaiqgsdatppnlnrkkphamaaakfkvkeycndacck

[illegible]

411.	atgacatttaataaagtattattgagctggatagtcattgattataacaactagcata tatctattttggcagttggcgatcatcaatgatgtatttaaccagtcatttttaacat gttagattaccgagattattagaagcattgttgacaggtatgatattaactgttcaggc cttattttcaaacagtttttaataatgcattggcagatagctttacattaggattggca agcgcgctacattttggttcaggattagcattatttttaggtttaacaacgtttatggatt cctgtattttcaataacatttagtttgataacatttaactgtatttagtcattacgctcg gtattgagccaaggtatccagttagaatccttaatttaagtggtttaattgattggtgcg ttattcaattcacttctatattttttgattttatataaacctcgcaaatataatcaatt gccaatattctgtttggtggtttttggtgatgcagaatactcaaatgtatctataatagca atcacatttatcatgtgattgtttggtatatttatcattcttaactcaactaaagtattg caattaggagaactaaaaagtcagtcactaggcttaaatgttcaattgattacatatac gcgttatgtatagcttctatgataacggcgataaatgtcgcatatgttggcatcattgga ttcattggtatggtgatccgcaactcattagaaaatggcagtggaacaatcatttagga agacaattggctttaaatattgtaactggaggacaaataatggttatggcagattttatt ggtagccatattattgtcaccagtaacaaatccggcaggtattatcattgcatattggt ataccagtggtattttacatgctaataatctcagtcgaaacggttacac
412.	mtfnkvllswiviliiittsiylfwqlgdindvfnqsilnvrllrlllealltgmiltvag lifqtvlnnaladftlglasgatfgsglalflglttlwipvftsitfslitlitvlvits vlsqgypvrililsglmigalfnsillyflillkprklntianylfggfgdaeynsnvsia itfialfjililnqlklglgelksqslglnvqlityialciasmitainvayvgiig figmviplqirkwqkslgrqlalnivtggqimvmadfigshilspvqipasiialig ipvlfymllsqskrlh
413.	atgaacaaacagcaaaaagaatttaaatcattttattcaattagaaagtcacttaggc gttgcatctgtagcaatttagtacactttttatttaattgtcaaatggcgaagcacaagca gcagctgaagaaacaggttggtacaaatacagaagcacaacaaaaactgaagcagttgca agtcacaacaaacacatctgaaaaagctccagaacataaacagtagctaattgctgtctca gtatcttaataaagaagttgaggccctactctgaacaaaaagaagctaagaagttaaa gaagttaaagcccttaaggaaacaaaagaagttaaaccagcagcaaaagccactaacaat acatatcctattttgaatcaggaacttagagaagcgttaaaaaacctgcaataaaagac aaagatcattagcgcacaaactctcgccaattgattttgaaatgaaaaaagaagattgga actcaacagttttatcattatgcaagttctgttaaacctgctagagttattttcactgat tcaaaacaggaattgaattaggattacaatcaggtcaattttggagaaaaattgaagtt tatgaaggtgacaaaaagttgccaatataattagtatcatagcactgtttaagattat gcttacattcgcttctctgtatcaaacggaacaaaagctgttaaaattggttagttcaaca cactcaataaacaagaagaaaaatagcattacacattaatggaattcgcaacaaat tataacagtcagataaattcaaaactgaagaagattataaagctgaaaaattattagcg ccatataaaaaagcgaaacactagaaagacaagtttatgaattataataaaattcaagat aaacttccgaaaaattaaaggctgagtacaagaagaatttagaggatataaagaagct ttagatgagcaagtgaaatcagctattactgaattccaaaatgtacaaccaacaatgaa aaaaatgactgattcaagatacaaaaatattggtttatgaaaagtggtgagaataacgaa tctatgattggtacttttgttaaacacctatttaaacaggtatgcttaacggcaaaaa tatattggtcatgaaactactaatgacgattactggaaagatttcatggttgaaaggtcaa cgtgttagaactataagcaagatgctaaaaataatactagaacaattattttcccatat gttgaaggttaaaactctatagtgctatcggttaagttcacgttaaaacagattgattat gatggacaataccatgtcagaatcggttgataaagaagcatttcaaaaagccaataccgat aaacttaacaaaaaagaacacaagataactcagctaaagaaggaagctactccagctacg cctagcaacaaacacacattcactgttgaaaaagaatcacaaaaacagacagccaaaaa gatgacaataaaacattaccaagttgtgaaaaaagaataagcagcatctagtgagtcaggt aaagacaacacgctgtctacaaaacaaactaaaggtgaagtagaatacagtagtacaact ccaactaaggttagtatctacgactcaaaatgttgcaaaacaaacactgcttcatcaaaa acaacaaaagattgttgcacaaactcagcaggttcttagcgaagcaaaagatagtgctcca ttcaaaaaagcaaacattaaaaacacaatgatggacacactcaaaagcaaaaacaataaa aatacacaagaaaaataagcaaaatcattaccacaacactggtgaagaatcaataaagat atgacattaccattaatggcattattagctttaagtagcatcggttgattcgtattacct agaaaacgtaaaaac
414.	MNKQKQKFSFYISIRKSSLGVAISVTLIIILMSNGEAQAAAEETGGTINTEAQPKTEAVA SPTTTSSEKAPETKPVANAVSVSNKEVEAPTSETKEAKEVEKVKAPKETKEVKPAKATNN TYPILNQELREAIKPNPAIKDKHSAFNSRPIDFEMKKKDGTOQFYHYASSVKPARVIFD SKPEIELGLQSGQFWRKFEVYEGDKKLPIKLVSVDYTVKDYAIRFSVSNGTAKVKIVSST HFNNKEEKVDYITLMEFAQPIYNSADKFTEEDYKAELLAPYKKAKTLEQVYELNKIQD KLPEKLKAEYKKKLEDTKKALDBQVKSATTEFQNVQPTNEKMTDLQDTKYVYESVENNE SMMDTFVVKHPIKTGMLNGKYMVMETINDDYWKDFMVEGQVRVTISKDAKNNTRTIIFPY VEGKTLYDAIVKVHVKTIDYDQYHVRIVDKEAFKANTDKSNKKEQDQNSAKKEATPAT PSKPTSPVEKESQKQDSQKDDNKQLPSVEKENDASSESGKDKTPATKPTKGEVSSSTT PTKVVTSTQNVAKPTTASSKTTKDVVQTSAGSSEAKDSAPLQKANKNTNDGHTQSQNNK NTQENKAKSLPQTGEESNKDMTLPMLALLALSSIVAFVLPFRKRKN
415.	atgaattatccaaatggtaaacatattcgtaaaaatagtgctatagacggagggaagaaag accgctgccttttagtaattattgattggtggacgtggtatgtcacttgaaaaagatatac gaacattcaaatagctttttatcttaaaagcgacattgcagttattcacaacaaagcctacg ccagtacaaatagttaatgtcaactatcctaagcggagtaaaagctgtgattaacgaagct tattttcgtacaccttcaacaactgattacaacggcggttatcaaggttatttatattgat tttgaagcaaaaggaactaaaaacaagcgtcctttcccttaataatattcatgacct caagtcgaacatataaaaaatgcatacaacaaaaaggtattgtgttttaattgattcgt tttaaaacgtatagtaagtttatcttttaccctattcaaaatcgaagttatttggag agataaaagataattataaagctctataacagttgatgaaatacgaacaaatggttac catattccttatcagtatcaaccaagatttagactatctaaagcagttgataagttgata ttagatgaaagtgaggaccgcta
416.	mnypngkpyrknsaidggktaafsnieygrgmslekdiehsntfylksdiavihkxpt pqiwnvnyprkrskavineayfrtpsttdyngvygyyidfeaketknktsfplnnihdh qvehmknayqgkivfimiirfktldevyllpyskfefwkrkndikxstivdeirkngy hipygyprldylkavdklildesedrv



417.	ttgatatacttagataatgcggcaacgacgaaagcatttgaagaagtgttagatacttat ttaaagtaaatcaatcaatgtattataatccgaatagtcgcataaagctgggttgtag gcaaatcaattactacaacagcaaaaaccctaaatgaatgaatgaatcaaaaaca aattatgatgtgttactagtggtgcaactgaatccaataatcttgctttaaagggt attgcttatcgtaaatttgatacagcgaaggaaataattacatccgtgttagagcatccg tccgtatttagaggttgaagatatttgaagcacacgaaggatttaaagttaaatattgtt gatgtaaagaaagatggcagttatgaacttagaacacttcaaagaattaatgtcagacaaa gtcggtttagtaacatgtatgtatgaataatgaactggacaaatacagcctattcca caaatggctaaagttaaaaaattatcctaaggcacattttcatgtagatgagggttcaa gcattcggaacaaattcaatggatctcaataacatagatagttatagtttaagtggacac aagtttaattgggtttaaaggacaaggcgtcttacttgaatacacaattcaaaaatgttgaa ccaactgtcccatgggtgggtggaagaatattggcgttagaagtggaacagtttaatttgcca aatgatattgcaatgggttaaagcagatgaagatagctaatgaaaactttgaagcattgaat gcatttggttactgagttaaataatgacgtccgtcaatttttaataaataatcatggagtt tatattaattcttcaacttcagggtccaccattcgttttaaataattagtttctcctggcgta aaaggtgaagttatagtttaagtttttcaaaaatagacattatgatattctacgacaagt gctgttcatctaaacgtaataaataaataagatttggctgcaatgggattatcagac aatcttatgaaaggtagtagaagattatcatttggggctactacaactaaagaagataata cgcagggtttaaagaaatatttatcatcatttatgaggaaattaaggagttgctaaaa
418.	liyl dnaattkafeevldtyl kvnqsmypnpsphkaglganql lqqaktqinaminskt nydvftsgatesmnlalkglayrkfdtakeiitsvlehp svlevryleahegfkvyv dvkkgdgsinlehfkelmsdkvlgltcmymnvtgqigpigmakvilmypkahfhvdavq afgkismldnnidsislsghkfnglkgqgvllvnhlqmvptvhggqgyvrsqgtvnlp ndiamvkmakianenfealnaftelnndvrgflnkylhgvvinsstsgsfvlnisfpgv kgevlvna fskydimisttsacsskrnklnvlaamgl sdsiegsirlsfgatttkedi arfkeifiliiyeiekellk
419.	atgtcatatcattgggtttaaagaaatgttactttcaacaagtatttttaattttaagtagt agtagtttagggcttgcaacgcacacagttgaagcaaggataacttaaatggagaaaaa ccaactactaatttgaatcataatataacttcaccatcagtaaatagtgaaatgaataat aatgagactgggacacctcacgaatcaaatcaaacgggtaattgaagggaacaggttcgaat agtcgtgatgctaactctgtatcgaataatgtgaagccagactcaaaacaacaaaccca agtacagattcaaaaaccagacccaaataaccaaaccgaagtcgaatcctaaaccagat ccagataacccgaacaaacacggatccaaaaccagaccagataaaccaaagccaaat ccggatccaaaaccagatccagataacccgaacaaatccagatccaaaaccagaccga gataaaccaagccaaatccggatccaaaaccagatccagataaaccaaagccaaatccg aatccaaaaccagaccctaataagccaaatcctaaccgctcaccagatcccgatcaacct ggggattccaatcattctgtggctcgaaaaatggggggacatggaacccaaatgcttca gatggatcctaataaggtcaatggcaacaaatgggaatcaaggaaactcacaatatcct actggaatgattttgtatcccaacgatttttagccttggaatggggcttacaagtat aatccgatatattttaaatcaaatataagttgggcaagattatggagaagttactgat gaagacatttataatattatcgaaaacaaaatccagcggaaatgcattttaaatgga ttacaacagcaatcgaaattacttttagattccaatatttcaatccattgaaatcagaaagg tactatcgtaatttagatgaacaagtactcgatttaattactgggtgaaattggatcaatg ccagatttgaagaaagcccgaagataagccggattcaaaacaacgctcatttgaaccgcat gaaaaagacgattttacagtagttaaaaaacagaagataataagaaaagtgctcaact gcataatagtaaaagttggctagcaattgtatgttctatgatgggtggtattttcaatcatg ctattcttatttgaagcgaaataaaaaagaaaaataaaaacgaatcacagcgacga
420.	msyhwfkml l stsil l ssssl glath tveakdn l ngekp tnl nhn it spsvn semnn netgtp hesnqt gnegtgsnsrdanpdsnnvkpdsnnqnpstdskpdpnnqnp spnpkpd pdpnpkpdnpdpdpdpkpn dpdpdpdpnpkpn dpdpdpdpkpn dpdpdpkpn npkpdnpkpn npdpdpdpdsnhsggs kn ggtwnpnasdgsgnqgwpn gngnqnsqnp tgn dfvsqrflalangaykynpyllnginklgkdygevtddedyniirkqnfsngaylng lqqgsnyfrfqyfnplkseryyrnldeqvlalitgeigsmpdlkpedkpdskqrsfeph ekddftvvkqgednkksastayskswlalvcsmmvvfslmflfvkrnkknknesqrr

399.	atgagtgaaaattttaagttacgtataaatgaaagtcggttttagtatctgttgcaattaca atggttatattatgacaaaacggacaagcagaagcatctgaaaatcaaaacgctttaatc tctaataataatgtagacaatcaggaaaaacagaataatgtaaatcaagctgttcagcct caaaaataactaataaagacatcaaaagtaacgggctaattttgtcaaatgaatgatatt aaaccagggtgatactctatatacagaacaaactttaccaaatcaatttactatttaact attgataaaaaagatgtgagctcagttgaagattctgacagcagctttgttatgtctgat aaagatgggaattttaagtatgacttaaatggctcgaaaattgttcataatcaagaatt gaagtgtcttcatcagatccctatttaggtgacgatgaagaagatgaagaagtagaagaa acttcaactgaagaagttggtgctgaggaagaagtagaagctaaagctacatatata acaccgcatatgaaaaagcgtatgaaataccgaaagaacagctaaaagaaaaagatgga catcaccaggtttttatcgaaacctattactgaaggttcagggtattttaaggccatacc ctctgtaaaaggttaaagtgtctctatctatttaataataaaattttaactttgagacaaat gctaattggtggtccaaataaagaagaagcgaaatctggatcagaaggaatctggatgcct attgatgacaaaggatactttaattttgacttcaaaacgaaacgtttcgatgatttagag ttaagaaaaaatgatgagatctcatttaacatttgcacctgatgacgaagatgagggcattg aagtcatatttttcaaaactaaagtaacgagtttagaagatattgataaagcagaacat aaatattgaccatactaaagtggaaaaagtaaaagtattgaaagattgtaagaagattta catgtagatgaaatttacggaagcttatatcatacagaaaaaggttaaggtattcttgat aaagaaggtactaaagtaattaaaggttaagactaaatcgcaaatgcagttgtgaaggt gactctgaactaggtgaaggtcaagaattccctgatttgcagtcgatgaaaaggtgaa ttcagctttgatgtagatcatgctggatttagattacaaaatgggaaacactaaacttc acagtagttgatctctatcacagtggaattattaagtggaattttgtttctaaaaacata gatatttatgaatctcctgaagaaaaagcagatcgtgagttgatgaaagaaatggaaac aaccttcgcatatcataaattacatggtgataaaattgtcggctacgatactaacggattc ccgattacctggttttatccattaggtgaaaaagaagtgaaacgaaggcaccaaaatta gaaaaa
400.	msenflkrkmkvglvsvaitmlyimnggaeasenqnalisininvnqekgnvnqavqp qmntnetskvpnfvlndikpgdtsiqgttllpnqfilltidkdvssvedsdssfvmsd kdgnfkyldngrki vhnqeievssdpylgddeeveetsteevgaeeesteakaty tpryekayeipkeqlkekdgghhvfilepi tegsgilkghtsvkgkvalsinnkfinfetn anggnpneekagssegiwmpiddkgyfnfdftktrfddlelkndeislftapddedeal kslifktkvtlsledidkaetkydhtkvekvvklkdvkedlhdvdeiygsllyhtekgkild kegtkvikgktkfanavvkvdselgegqefpdlqvdvkkeffsfdvdhagfrlqngeltnf tvvdpitgellsgnfvskndiyespeekadrefdermentpayhklhgdikivgydtngf pitwfyplgekkverkapklek
401.	gtctatatgtatcaagtaccaggtttattgttaggtggtacaacaattgtaataagtc actaatatcattaatgaaagatcaagtgatcaattaaaagcagtggaattcaagctgc ttttttaaa
402.	vymlsstrfivrvwnncnknstniinerssgsiks dqnsccffk
403.	tttaaatataaaaaaacagaaaaataacctagttattatgatgcaacaaattaaaattact atactatatattcatatttaacgataaaataaatgggaataccttcttaacataacaccaaat aagacgcgtacttctgacctggccaaaaagaaattgatttttagctgtcttcacaatggtt aaagtttcaaaaatcttttctgctgattttgacgtactttttggaatcagccaattaatc attgggaaaaagagtgctaaccatgtacttactaaatcaatcatcaaatattcatctgt tatttgataaattctatatttgggattcttattaatattttcagtttcaaaagcaatgtc tccacttcttttcaattgggtttatata
404.	fkyyknrkipsimmqgikiti lysyltinkweyllnitpnktvlpagqkelilavftmf kvsksfslilyffgisqliigkksanhvltksii kysslyliilylgfllifsvsqsnv stsfqlvly
405.	ggaatgaaaaatgatttcgatttccgatgaaatcaattgttttaatttggttgcaattgtgta gggttatgttcttttatcttctctgctaaagtatatttttggatttccatttcttctaac actgtagctaagacatcaataaagcgtggttaagtttttagttacagctaggtcgatacga cga
406.	gmkmisisdeinclincncvlglsfissakiyfwisissntvaktsikrgkflvtarsirr
407.	tttgaagctacaaaggtaccgcataaatggcagcacatttaatacaatgcgctaaacttt aatgaggcgctgatttgccttctttaaagtcacatagcactgataattcctaaaata gctactatacgtggaattgtcatgctcggaactactcggttatatgaagaagcaccaga cctgctatcacaccacataactaacgcaatatatagaattgcttcaaatcattcactcct aaattggtattacactattacaca
408.	featkvphngstlinnalnfnealiclslkvniaaliipkiatirgimvlygcigckkapr paitphntaiyrncfksftpklllhyt
409.	atgcttgcgtcgcatactattagaatctggtgcagaaggtacgcgtgtagaagatacc atgacacgtattgcaaaaaaacttgggtacagtgaagtaacagctttgttacaacact gtcatccagtttacgttacattcggaatcggttcttagaataatttagaattacctctcga gatacaaaacttaataaaaatttctcaagctaataaaatttcgctgcaattacaacaat gaaatttctttagccgaagcaaaaacgcaactgaaaaaatatattgttgaagcgtgac agcagttctccctttaaaggttttgcgtcagcaatgattgcaatgagtttcttatatta caaggtggttagattgattgattttaaactgcgataattagcaggtagcttaggataccta gtcactgagatttttagatcgtaagttacacgcacagtttatccagaattcattggttca ttagttattgggattatcgccgttattggacatacacttatccaacaggtgacttggca actattatcattgcggcagtcagtcctattgttctggtgatttaataacaaacgcaata caagatttatgttggaacacatggtgatgttcacacgaatcattagaagcattggtt actgcgttttggcatcgggtgctggcgttggtagcgtatttaatttagta
410.	mLaarillessgaegtrvedtmtriakklgyseSNSfvntvigtflhsesfpri fritsr dtnlikisqankisrqitnneislaeaktqlekiyvakrdsslpfkfgfaaamiamsfilyl qggrrlidvltailagslgylvteildrklhaqfi pefigsilvigiaavightliptgdla tliiaavmpivpgvli tnaiqdlfgghmlmfttkslealvtafgigagvgsvliiv

421.	<p>atgagagataaagaaggaccggttaataaaagagtagattttctatcaataaattgaat  aaatatccaataagaaaatttacagttggaacagcatctatttaattggctcactaatg  tatttgggaactcaacaagaggcagaagcagctgaaacaataatgagaatccaactaca  ttaaaagataaattccaatcaaaagaagtgaagattgaagaagttaacaaacaaagacact  gcaccacaggggtgtagaagctaaatctgaagtaacttcaacaaagacacacaaatcgaaat  gaaccatcagtaaaagctgaagatatcaaaaaaggaggatcaccaaaagaagtagct  gatgttgcagagttcagccgaaatcgtagtcactcataacgcagagacacctaagggt  agaaaagctcgttctgtgatgaaggctcttttgatattacaagagattctaaaaatgta  gttgaatctaccccaattacaattcaaggtaaagaacattttgaaggttacggaaggtgt  gatatacaaaaaaaacacagatttaggggtatcagaggttaaccaggtttaatgttgg  aatgaaagttaattggtgataggagctttacaattaaaaataaaatagatttttagtaag  gatttcaattttaagtttagagtggaataaaccatcaatcaataaccacaggtgctgat  ggttgggggttcttatttagtaaaaggaatgcagaagaattttaactaatggtggaatc  cttggggataaaggctcgtgtaaaatcaggcggttttaaaatgatactggatcacattat  acaagttccatggacaaaactgaaaagcaagctggacaagggtatagaggatcaggagct  tttggtaaaatgacagttctggttaattcacaaatggttggagaaaatattgataaatca  aaaacttaatttttaactatgcggacaattcaactaatatcagatggaaagtttcat  gggcaacggtttaatgatgtcatcttaacttatgttgcctcaactggttaaaatgagagca  gaatatgctggttaaaacttgggagacttcaataacagatttaggtttatctaaaaatcag  gcataatttcttaattacatctagtcaaaagatggggccttaacaaaggataaaatgca  aatggtcgtgatgagaactgacttgaagggttcagagtttacttttacaccagaagcgcca  aaaaacaataacagaatttagaaaaaaagttagaagagattccattcaagaagaacgtaaa  ttaattccggatttagcaccaggagacagaaaaagttaacagagaaggacaaaaaggtgag  aagacaataacgacaccaactaaaaaatccatttaactggagtaatttagtaaaaggt  gaaccaaagaagagattacaaaagatccgatttaatagaattaacagaatacggacctgaa  acaatagcgcaggttcacgagacgaatttgatccgaagttaccaacaggagagaaagag  gaagttccaggttaaccagggaattagaatccagaacaggagagctagttagaccacg  gtcgtatagcgttaacaaaatattggacctgtaaaaggagagctcgatttagaaaaagaagag  attccattcagagaagagacgttaatttaattccggatttagcaccaggagacagaaaaagt  acaagagaaggacaaaaaggtgagaagacaataacgacaccaactaaaaaatccattta  actggagtaatttagtaaaaggtgaaccaaagaagaatacaaaaagatccgatttaatt  gaattaacagaatacggaccagaaacgataaacaccaggttcacgagacgaatttgatccg  aagttaccacaggagagagaaagaggaatttccaggttaaccagggaatttaagaatccagaa  acaggagacgttagtagaccacgggtcgatagcgttaacaaaatattggacctgtaaaagga  gactcgatttagtaaaaaagaagaattccattcaagaagaacgtaatttaattccggat  tagcaccaggagacagaaaaagtaacagaagaaggacaaaaaggtgagaagacaataacg  acgcaacactaaaaaatccatttaactggagaatttagtaaaaggtgaatcgaaagaa  gaaatcacaaaagatccgatttaattgaatttaacagaatacggaccagaaacgataaacacca  ggctcagcagacgaatttgatccgaagttaccaacaggagagaaagaggaatttccaggt  aaaccagggaatttaagaatccagaacaggagagcgttagtagaccacgggtcgatagcgt  acaaaatattggacctgtaaaaggagactcgatttagtaaaaaagaagaattccattcaag  aaagaacgtaatttaattcctgatttagcaccaggagacagaaaaagtaacagaagaagga  caaaaaggtgagaagacaataacgacgccaacactaaaaaatccatttaactggagaatt  atttagtaaaaggtgaatcgaaagaagaatacaaaaagatccgatttaattgaatttaacagaa  tacggaccagaaacgataaacaccaggttcacgagacgaatttgatccgaagttaccaaca  ggagagaagaaggaaggttccaggttaaccagggaatttaagaatccagaacaggagatgta  gttagaccacgggtcgatagcgttaacaaaatattggacctgtaaaaggagactcgattgta  gaaaaagaagaattccattcgagaagaacgtaatttaattcctgatttagcaccagggt  acagaaaaagtaacagaagaagaaggacaaaaaggtgagaagacaataacgacgccaacacta  aaaaatccatttaactggagaatttagtaaaaggtgaatcgaaagaagaatacaaaaa  gatccagtttaattgaatttaacagaattcgggtggcagaaaaatccgcaaggtcctaagat  atctttgatccaacttaccacagatcaaacggaaaaagtagcaggttaaccagggaatc  aagaatccagacacaggaagaagtgatcgaagagccagtggtgatgtgattaaacacgga  ccaaaaacgggttacaccagaaacaaaaacagtagagatccggtttgaaacaaaacgtgag  tttaattccaaaatttaacacctggtgaagagcagtgaaacagaaggacaaaccagggaat  aagacaatacacaaacaaatcacagtgaaacatttaacaggtgaaaaagttggcgagggt  caaccaacagaagagatcacaaaacacacagtagataagatttagagttcggtagagag  aaacccaaaagatccaaaaggacctgaaaacccagagaagccgagcagacaaactcatcca  agtgccccagtaaatcctaacaatccaggattatcgaaagacagagcaaaacaaatggc  ccagttcattcaatggataaaaatgataaagttaaaaaatctaaaatttgtaaaagaatca  tagtgaatcaagagaaaaaacgagcagaatttaccaaaacaggtttagaagacacgcaa  aaaggtttgatctttagtagtataattggaatttgctggatttaattggtcgtgaga  agaaagaat</p>
422.	<p>mrdkkgpvnkrvdflnsklnkysirkftvgtasilgslmylgtqqeaaenienptt  lkdnvqskvkieevtnkdtpagvveaksevtstnkdtehepsvkaediskkedtpkeva  dvaevqpkssvthnaetpkvrkarsvdegstfditrdsknvvestpitigqkehfevgysv  diqkkptdlgvsevtfrnvnesngligalqlknkidfskdfnfkvrannhqsanttgad  qwgflfsgnaeeyltnngilgdkglvnsngfkidtggiytsmdktekqaggyrgyga  fvkndssgnsqmvgenidksktnflnyadnsntsdgkfhgqrlnviltvystgkmra  eyagktwetsitdlglsknqaynflitssqrgwlnqginangwmrtdlkgsfettpeap  ktitelekveeipfkkerkfnpdlapgtekvtrregqkgektittptlknpltgviiskg  epkeiitkdpinelteygpetiapghrdefdpklptgekeevpgkpgiknpetgdvvrpp  vdsvtkygppvgdsivekeeiipfekerkfnpdlapgtekvtrregqkgektittptlknpl  tgviiskgepkeiitkdpinelteygpetiapghrdefdpklptgekeevpgkpgiknpe  tgdvvrppvdsvtkygppvgdsivekeeiipfekerkfnpdlapgtekvtrregqkgektit  tptlknpltegiiskgeskeiitkdpinelteygpetiapghrdefdpklptgekeevpg  kpgiknpetgdvvrppvdsvtkygppvgdsivekeeiipfekerkfnpdlapgtekvtrreg  qkgektittptlknpltegiiskgeskeiitkdpinelteygpetiapghrdefdpklpt  gekeevpgkpgiknpetgdvvrppvdsvtkygppvgdsivekeeiipfekerkfnpdlap  tekvtrregqkgektittptlknpltegiiskgeskeiitkdpinelteygpetiapghrdef  ifdpnlptdqtekvpgkpgiknpdtgkviiepvddvikhgpkgtgtpetkveipfekre  fnpklqpggeervkqegqgsktittptvnpitgkvgeggpteeitkqpvdkivefgege  kpkdpkpgpenpeksrpthpsgppvnpnpgliskdrakpnpvmsmdndkvkskiakes  vanqekkraelpktglestgkglifssiiagiaglmllarrkkn</p>

423.	<p>gtgaaaagcaatcttagatacggcataagaaaaacacaaattgggagcggcctcagtattc  ttaggaaacaatgatcggttgggaatgggacagaaaaagagctgcagcatcggaacaa  aacaatactacagtagaggaaagtgagggttcagctactgaaagtaaagcaagcgaaaca  caaacactacaaaataacggttaatacaatagatgaacacaaatcatacagcgcgacatca  actgagcaaccatcacaaatcaacacaaagtaacacagagaagcaccgaaaactgtgcaa  gcacaaaagtagaaacttcgcgagttgatttggccatcggaagaaagtgctgataaggaa  actacaggaactcaagttgacatagctcaaccaagtaacgtctcagaaattaaaccaaga  atgaaaagatcaactgacgttacagcagttgcagagaaagagtagtggagaaactaaa  gcgacaggtacagatgtaacaaaataagtggaagtagaagaaggtagtgaattgttagga  cataaacacagatacgaatggttgaatcctcataacgcagaaagagtaaccttgaatat  aatggaaaatttggagaaggaattaaagcgggagattatttggatttcacattaaagcgat  aatgttgaaaactcatggtatctcaacactgcgtaaaagttccggagataaaaagtagat  ggtcaagttatggcgacaggagaaaataatggagaaagaaagtagatatacgtttaaa  gaatatgtacaagaaaaagatttaactgctgaattatctttaaattctatttattgat  cctaacacagtgacgcaaaaaggtaacaaaatgtgaagttaaattgggtgagactacg  gttagcaaaattatttaattcaatatttaggtggagttagagataattggggagtaaca  aatgttggaactgaattgtacttttaataaagtagatgggaatttagtcattttgcgtac  atgaaacctaacacacagtcgttaagctctgtgacagtaactggtcaagtaactaaagga  aataaacacggggttaataatccaacagtttaaggtatataaacacattggttcagacgt  ttagctgaaagcgtatatgcaaagcttgatgatgtagcagaaattgaagatgtgactgat  aatatgagtttagattttgataactaatggtggttattctttaaactttaataatttagac  caaagttaaaaattatgtaataaaatagaaggtattatgattcaaatgctagcaactta  gaatttcaaacacacaccttttggatattataactattattatacaagtaatttaacttgg  aaaaatggcgttgcattttactctaataacgctcaaggcgacggcaagataaactaaag  gaacctattatagaacatagtagtctctatcgaacttgaatttaaatcagagcggcagtg  gagaagcatgaattgactggtacaatcgaagaagtaattgattctaagccaattgatttt  gaatatcctacagctgttgaaggtgcagaaggtcatgcagaaggtaccattgaaactgaa  gaagattcttattcatgtagactttgaagaatgcacacatgaaaattcaaacacatcatgct  gatgtgttggaatgaagaagatacaaacacaggtggtggtcaggttactactgagct  aacctagttgaatttgacgaagatttcacaaaaggtattgtaactggtgctgttagcgat  catacaacaattgaagatcacgaagaataacgactgaaagtaattctgattgaactagta  gatgaactacctgaagaacatggtcaagcgcaaggacaaatcgaggaattactgaaaac  aatcatcatatttctcattctggttttaggaactgaaaatggtcacggttaattatggcgtg  attgaagaatcgaagaaatagccacgtggatattaagagtgaaattaggttacgaaggt  ggcgaatagcggtaatacagtcatttgagggaagacagagaagataaaacggaaat  gaacaaggtggcaatatcgtagatctgatttcgtagtggttacctcaattcatggtcaa  aataatggtaaccaatcattcgaagaagatacagagaaagacaaacctaaagtatgaacaa  ggtggttaatatcattgatctgacttcgacagtggtgccacatattcacggattcaataag  cacactgaaattattgaagaagatacaataaaagataaaacaaattatcaattcgggtgga  cacaatagtggtgactttgaagaagatacacttcacaagtaagtggtcataatgaaggt  caacaacacgattgaagaagatacaacacctccaatcggtgccaccaacgccacgcacca  gaagtaccaagcgagcggaacaccaacaccacccagacaccagaagtaccaagcgagccg  gaaacaccaacaccgcgaacgccagaggtaccaactgaacctggttaaaccaataaccacct  gctaaagaagaacctaaaaaaccttctaaccagtggaacaaggttaagtagtaacacct  gttattgaaatcaatgaaaaggttaagcagtggtaccaactaaaaaagcacaatctaag  aaactcgaactacctgaacacaggtggagaagaatcaacaacacacggcatgttggtcggc  ggattatttagcattttaggttttagcgttattacgcagaaataaaaagaatcacaaagca</p>
424.	<p>vknsnrygirkhklgaasvflgtmivvmgqkekaaaaseqnnntveesgssateskaset  qtttnnvtidetsysatstegpsqstqvttteeapktvqapkvetsrvdlpsekvadke  ttgtqvdiagpsnvseiikprmkrrstdvtaaveevveetkatgtdvtnkveveegseivg  hkqdttnvvnphnaervtlkykwkfgegikagdyfdftlsdnvethgistlrkvpelikstd  ggvmatgeiigerkvrytfkeyvqekkdltaelslnlfidptvtqkgnqnvvevklgett  vskifniqylggvrdnwgtangridtlmkvdgkfskfaymkpnnqslssvtvtgqvtkg  nkpgvnnptvkvykhigsdllaesvyaklddvskfedvtndmsldfdtnggyslnfnld  qskmyvikygyydsnasnlefgthlfgynyvysnltwknvafysnnaqgdgkdklk  epiiehstpielefkseppvekhehtgtieesndskpidfeyhtavegaeghaegtiete  edsihvdfeesthenskhhadvveyeedtnpgggqvtttesnlvafdedstkgilvtgavsd  htiedtkeyttesnlhelvdelpeehggaqgpleeientnnhishsglgtenghnygv  ieeleenshvdikselgyeggnsgnsgsfeedteedkpyeqgnivdidfdsvpqiHgq  nngnqsfedtekdkpyeqgnniididfdsvphihgfnkhteieedtnkdipnyqfgg  hnsvdfeedtlpqvsgnhegggtieedtppiivpptptpevpsepptptptpevpsep  etptpptpevpptepgkpiipakeepkkskpveggkvvtpvieinekvvavptkkaqsk  kselpetggeestnngmifgglsilglallrrnknkhka</p>

425.	<p>atgaaagctttattactttaaacaagtgatggctcggttttgccttttttagtgtaatggga  ttatggcaagtcctcgaacggtgagcagcatacaccaatgaaagcacatgcagtaaca  acgatagacaagcaacaacagataagcaacaagtagccgcaacaagaagcggtcat  cattctggcaaggaagcggaaccaacgtatcagcatcagcgaggggaacagctgatgat  acaaacagcaaaagtaacatccaacgcacacatctaaacaacacatctacagtagttcaaca  aaagtaaacgaaacacgcgacgtatagatacacaacaagcctcaacacaaaaaactcac  acagcaacgttcaattatcaaatgctaaaacagcatcactttcaccacgaatgtttgct  gctaagtccaccacaacaacaacacataaaatattacatacaaatgatccatggccga  ctagccgaagaaaaagggcggtgcatcggtatggctaaattaaaaacagtaaaagaacaa  gaaaagcctgatttaattgttagacgcaggagacgcctccaaggtttaccatttcaaac  cagtcctaaaggtgaagaaatggctaaagcaatgaatgcagtaggttatgatgctatggca  gtcggtaaccatgaatttgactttggatcagatcagttgaaaaagtttagagggtatgtta  gacttcccgtatgtaagtactaacgtttataaagatggaaaaacgcgcgtttaagccttca  acgattgtaacaaaaatgggtattcggtatggaattattgggtgaacgacaccagaaaca  aagacgaaaaacaagacctgaaggcattgaaggcggtgaatttagagatccattacaaagt  gtgacagcggaatgatgcgtatttataaagacgtatgatacatttgttgttatatcacat  ttaggaattgatccttcaacacaagaacatggcggtggtgattacttagtgaacaatta  agtcacaaatccacaattgaagaaacgtattacagttattgatggctattcacatcacgta  cttcaaaatgggtcaaatttataacaatgatgcattggcacaacaggtacagcacttgcy  aatatcggtgaagattacatttaattatcgcaatggagaggtatcgaaattataaacctgca  ttgatttaattgtaaaagcgttgaaaaatgtaacaccgaacaaagcattagctgaacaaat  aatcaagctgatcaaacatttagagcacaaactgcagaggttaattattccaaacaatacc  attgatttcaaaaggaagagatgacgttagaacgcgtgaaacaaattaggaaacgcg  attgcagatgctatggaagcgtatggcggttaagaatttctctaaaaagactgactttgcc  gtgacaaatgggtggaggtattcggtgcctctatcgcaaaaggtgaaggtgacacgctatgat  ttaatctcagttattaccatttggaaatagcttgccgcaaatgatgtaaaaggttcagac  gtctggacggttctcgaaacatagtttaggcgcaccaacaacacaaaaaggacggtgaagaca  gtgttaacagcgaatggcggtttactacatatctctgattcaatccggtgtttactatgat  ataaataaaccgtctggcaaacgaattaatgctattcaaattttaataaagagacaggt  aagtttgaataattgattttaaaccgtgtatatcacgtaacgatgaatgacttcacagca  tcaggtggcgacggatagtagtgcgtcggtcctagagaagaaggtatttcattagat  caagtactagcaagttattttaaaccagctaacttagctaagtagtatgacgacagaacca  caacgtatgttattaggtaaaccagcagtaagtgaaacaaccagctaaaggacaacaaggt  agcaaaaggtagtagtctggttaaagatacacacaaccaattggtgacgacaaagtgtggt  ccagcgaaaaaaccagctccaggttaaagttgtattgttgctagcgcatagaggaaactgtt  agtagcggtagacagaaggttctggtcgcaaatagaaggagctactgtatcaagcaagagt  gggaaacaattggctagaatgtcagtgctaaaggttagcgcgcatgagaaacagttacca  aaaactgggaactaatcaagttcaagccagaagcgatgtttgtattattagcaggtata  ggtttaatcgcgactgtacgacgtagaaaagctagc</p>
426.	<p>mkalllktsvwlvl1fsvmglwqvsnaaeqhtpmkahavttidkattdkqgvptkeaah  hsgkeaatnvsasaggtaddtnskvtsnapsnkpstvstkvnetrdvdtqqastqkpth  tatfklsnaktaslsprmfnaanpqtthtkilhtndihgrlaeekgrvigmaklktvkeq  ekpdlmldagdafqglplsnqskgeemakamnavgydamavgnhefdfygdqklklegml  dfpmlstnvkydkgkrafkpstitvtkgirygiigvttpektkttrpegikgvefrdplgs  vtaemmriykdvdftfvishlgidpsetwrgdyllvklslmqpqlkkrividghshstv  lqngqiynndalagtgtalanigkltfnyrngevsnikpslinvkdvenvtpnkalaegi  nqadqtfraqtaevliipnntidfkgerddvrtretnlgnaladameaygvknfskktdfa  vtngggi1rasiakgkvtrydlisvlpfgntiaqidvkgssdwtafehs1gapttkqdkgt  vltanggi1hisdsirvydinkpsgkrinaiqilnketgkfenidlkrvyhvtmmdfta  sggdgysmfggpreegisldqvlasy1ktanlakydttepqrmllgkpavseqpakgggg  skgsksgkdtqpiqddkvmppakpapgkvlllahrgtvssgtegsgrtiegatvssks  gkqlarmsvpkgsahekqlpktgtngssspeamfvllagig1iatvrrrkas</p>

427. atgaataaaaattcgaagaagaagctcgattttcttccaacaagcttaataagtactca  
attagacgtttctactgttagggacagcttcgatttttagtaggagctactttaattttcggg  
gtttgcaaatgatcaagcagaagccgctgagaataacacactcaaaagcaagatgatagt  
tcagatgcaagtaaaagtaaaaggttaattgttcaaaactattgaacaattcttctgcaattca  
aatgaattctgatatctctgaacaagttgatgtaactaaagatacaactgaacaagcatca  
acagagaagaaagcaaatcaactgaacaagcatcaacagagaagaaagcagatcaact  
gaacaagcaacaacagagaagcgcgaagctgaaggaacagacaaagtagaacaagaa  
gaagcgcgaagctgaagaacagacaaagcaacaacagagaagcgcgaagctgaa  
gaacacagacaaagcaacagagaagcaccacaaactgaagaacagacaaagcaacaaca  
gaagaagcgcagcagctgaagaacaaagcaaaagcagcaacagagaagcgcgaagct  
gaagaacaaagcaaaagcagcaacagagaagcgcgaagctgaagaacagagaagaaaca  
gcaacagagaagcaccacaaactgaagaacagacaaagtagaacaagagaagcgcga  
aaagctgaagaacaaagcaaaagcagcaacagagaagcaccacaaagctgaagaacaaac  
aaagtagaacaagagaagcgcagcagctgaagaacaaacaaagcagcaacagagaagaa  
acaccagcagttgaagacacaaatgctaaagagcaattcaaatgctcaaccatcagaact  
gagagaactcaagttgtatgacagttgctaaagatttatataaaaaactgaagttaca  
gaagcagcaaaaagctgaattgaaaaagttattaccaaaagattttcaaaacttatctaat  
gaagaatttaaaaaatagctttaagtgaaagtactaaagaacagcttaacaaagaaac  
gcacacacagagaacattccggttcagtaagcagcaattgctagaacaacaaatgttaac  
tattcagcaacagcattaaagagcagctgcacaagacacagttactaaaaaggaactggg  
aactttactgcgcatggagataataatccataaaacttataaagaagattccctaatgaa  
ggcagcgtcaactgcattcaatcaaaacttcaatcctaatacaggaactaaaggcgcat  
gaataataatgataaaatagattttaataaagactttacaattactgttccagtagcaaac  
aacaacagaggttaatacaacagagcagatggctggggcttcagtttactcaagggaat  
ggccaaagacttcttaaaccaaggtggattttaagagacaaaggtatggcaaatgcatct  
gggttttaaaattgatacggcatataataatgttaattggttaaagtcgataaactcgatgca  
gataaaacaaacaaacttaagtcacaaattggcgagcaaaagttggttacggtacattttgt  
aaaaattggtgcagatgggtgtgactaaacaaagttggtcaaaatgccctaaatacaaaagat  
aaacctgttaataaaataatttatgcagataatacaactaatcatcttgatgggtcaattc  
catggccaagatttaaatgatgtagtattaaattatgatgcagcaacaaagtagaataact  
gctacataatgcaggaacaaacatggaagctactacagatgatttaggaattgataaataca  
caaaaataataattcttaattacttcaagtcataatgcaaaaatagatttctaatggaatt  
atggaacaaaactctgaaggtgttaacaattacaacgcctcaagctgatttaattgatgat  
gtggaggttaacgaacaaacaaacttctcataaaactattcgtgagtttgatccaaactca  
gaaccaggtccactgattgttatgtacaaaaggtgaagatggagagaacaaacaaact  
acacacactaaagttgaccctgtacagggagatgtagttgaacgtgggtgaacacaaaca  
gaagttacaaaaaatccagttgacgagattgtacactttacacctgaagaagtaccacaa  
ggctataaagatgagttcgatccaaacttaccattgacggtagcagaagaagtaccaggt  
aaaccaggtacagaatcctgaacaggtgaagtagtaacacctccggttgacgatgtc  
acaaaacttggtccaaagcagggcgaaccagaggttactaaagaagaaataccattcgag  
aaaaaacgtgagttcaattccagacttaaaaccaggtgaagagaagtagtaacgaagaagga  
caactggagagaaaaacaacaacgcgaacaaacaaatcaatccattacggggagaaaaa  
gtaggcgaaggtgaaccaacaacagaagtaacaaaagaaccagtagatgaattcacacaa  
ttcgggtggagaagaagtaccacaaggtcataaagatgagttcgatccaaacttaccatt  
gacggtacagaagaagtaccaggttaaacagggcatcaagaatcctgaacaggtgaagta  
gtaacacactccggttgacgatgtcacaaaacatgggtccaaagcagggcgaaccagaggt  
actaaagaagaataccattcgagaaaaacgtgagttcaatccagacttaaaaccaggt  
gaagaagaagtagtaacgaaggaacaaactggagagaacaaacaacacgcgaacaaaca  
attaatccattacggggagaaaaagtagggcgaaggtgaaccaacaacagaagtaacaaaa  
gaaccagtagatgaattcacacaaatccggtggagaagaagtaccacaaggtcataaagat  
gagttcgatccaaacttaccattgacgggtacagaagaagtaccaggttaaacagggcatc  
aagaatcctgaacaggtgaagtagtaacacctccggttgacgatgtcacaaaacatgggt  
ccaaagcagggcgaaccagaggttactaaagaagaataccattcgagaaaaacgtgag  
ttcaatccagacttaaaaccaggtgaagagaagtagtaacgaagaaggaacaaactggagag  
aaaaacaacaacacgcgaacaaacaaatcaatccattacggggagaaaaagtagggcgaaggt  
gaaccaacaacagaagtagtaacaaagaacagtagatgaattcacacaaatccggtggagaa  
gaagtaccacaaggtcataaagatgagttcgatccaaacttaccattgacgggtacagaa  
gaagtaccaggttaaacaggtcatcaagaatcctgaacaggtgaagtagtaacaccacca  
gtagacgatgtcacaaaacatgggtccaaagcagggcgaaccagaggttactaaagaagaa  
attccatagaactaaacgcgtattagatccaacaatggaaccaggttagtcttgataaa  
gtagctcaaaaaggtgaaaaatgggtgaaaaaacaacaacacacaaactacaatttaacca  
ttaacggggagaaaaagtagggcgaagggcgaacaaacacgaagtagtaacgaagaacaaata  
gacgaattgttaactatgcacctgaaatttatctcctggttacagtgagaagaattgat  
ccaaacttaccagaaggtgaaactaaagtatccaggttaagatgggttgagaagatcct  
gaaactggagaagatcattgaagaacacaaagatgaagtaattcatccatgggtgctaaagat  
gattcagatgaggacagcaggttcagacgcagatagcagttctgatgcagacagcagactca  
gacgcagatagcagctctgatgaggacagcaggttcagacagcagatagcagttcagattca  
gatagcagctctgatgaggacagcaggttcagacagcagatagcagttcagacgcagatagc  
gattctgatgcagacagcagcttcagacgcagatagcagcttcagattcagacgcagatagc  
gactcagattcagacgcagatagcagcttcagattcagacgcagacttcagacgcagacagc  
gactcagattcagacgcagatagcagcttcagacgcagacagcagcttcagacgcagatagcagctca  
gattcagacagcagattcagacgcagatagcagcttcagattcagatagtgactctgatgag  
gacagcagcttcagacgcagatagcagctctgatgaggacagcagcttcagacgcagatagc  
gattctgattcagacagcagattcagacgcagatagcagcttcagacgcagatagcagttca  
gacgcagatagcagcttcagacgcagatagcagcttcagattcagatagcagctctgatgag  
gacagcagatagcagcttcagattcagacagcagcttcagacgcagatagcagcttcagacgc  
gatagcagatagcagcttcgatgacagacagcagcttcagacgcagatagcagctctgatgag  
gacggcagcttcagacgcagatagcagcttcgatgacagacagcagcttcagacgcagatagc  
gattctgatcagacagcaggttcagacgcagatagcagcttcagattcagacagcagattca  
gacgcagatagatcataatgacaaaacagataaaccaataaagaaggttaccagat  
actggttaattgatctcaaaaataatggcacattatttggttctactattcgctgagcttgga  
ggattattcttagttggcagagctcgtaaaaacaaaaataatgaagaaaa

[illegible]

433.	atgaatcaatatcattctaatagcacacaaccaagtcagtcggcgttttttgcctatagtt ttagtgggcatactatgttttcttattctcttttacgattaatggtaacaacactatttcc gtcgatcatgttccatagccattcgctcaatcataggccacttatgccctatgttgca ctgattatgattttaattggtacagcgttaccatagtgagacgtacttttatgacttca atcacaaacttggtcattacattatataagttgcaggtgcaatgacgtataatgtat gtatttaaaatcggtccatcaatactatttaagctaactatggtccggttttgtttgaa aaattaatgatgccattaatgtatcttaattccagtaggtgcaattgctgcttctttatta gtgggcatggtcttattagaattgtcgggtgttatatggagcctatttatgagacctatt tttaaaacaccaggaaaaatccgctgtcgatgcagtcggttctgttctgctggcagttattcc ttaggattattgattactaatcggtctataagcaagggatgtacaacaaacagagaagcc acgattatttgcgactggtctttcaacagtttcagcaacttttatgattatcggtgtctaaa actttaggatttaattgcccgtattggaatttatacttttgataacttttagtcacacattt tcgctgactgcaattactgcatggctaccgccaatcagcaatgaatcaacagaatattat aacggacaagaaggagaacaagaagttgctattgaaggaagcagactgaaaactgcata gcagagggcgatgaacaaaaatgcattaacaccatctctcgtagaagaagctttgggacaat ttgaaagacgggttagaaatgactgttggtattttaccttctatatatcgattggtttt ttaggactgatttgtagcgaactatacaccattcatgattggcttggctatatcttctat ccatttatttataattttcccaattgctgatcaggctttactagcaaaagcgtcagcgatt tctattgtagagatgtttctaccatctttgttagtaactaaagctgcaatgagtactaaa tttgcgtcggtgtagtaagcgtatcagccattatcttttctcagcattagtgccatgt atactagcaactgaaattaaaatacctgtctggaaactcatcatcatttggtttttacgc gtggcgtttgctgctattaatcaccatccccgtcgtcttacttatttttggga
434.	mmqyhnagqpsawrfvyslvlgilcfffipftingnntifvdhvhlairstiglpmpyva limiligtalpiivrntfmsitnlvltlfrkvgamigimvfkigpsilfkanygpflfe klmmpsilipvgaialsllvgyllfvgvymepimrpfktpgksavdavasfvgsys lgllitnrvykqgmynkreatiitgfstvsatfmliavaktlgimphwnlyfwitlvitf vytaiawlpisnesteyynggegegevaiegsrlktayaeamkqnaltpslvkmvwn lkdglentvgilpsilsigflglivanytpfidwlyfifypfiyifpiadqallakasai sivemflpsllvtkaamstkfvvgvsvsaiiffsalvpcilateikipvwklliiwflr valsllitipvallifg
435.	atgaaaaatgagaacaattgctaaaaccagtttagcactaggcgttttaacaacaggcgca attacagtaacgcagcgaatcggtcaaaagcagaaaaatacaatcaactaaagttagacaaa gtaccacgcgttaaaagcagagcgattagcaatgataaacaacacagcaggtgcaaatcca ggcacaacacaagcagctaacacagaagaacgcagcgcctaaactcgaaaaggcacca aatactaatgaggaaaaaacctcagcttccaaaatagaaaaatatcacaaactaaacaa gaagagcagaaaaacgcttaatatatcagcaacgccagcgcttaacaagaacaatcacaa acgacaacccaatccacaacgcgcaaaactaaagtacaaacacctccatcaacaacacgc ccacaaccaatgcaatctactaaatcagacacaccacaatctccaaccataaaacaagca caaacagatatgactcctaaatgaagatttaagagcgtattatacaaaaacggagttt gaattgaaaagcagtttggatttatgctcaaaacctggacgcggttaggtttatgaat gatttaccataatagggttcattataaaatagcttttagttgaaaagatgagaaaaatat aaataggacaccttacgataatcagatgtatttatcgttttagaagacaataaataatcaa ttgaaaaaatattctgtcggtggcatcacgaagactaatagtaaaaaagttatcacaaa gtagaattaaagcattactaaaaagataatcaaggtatgatttcacgcgaggtttcagaa tacatgattactaaaggaagagatttccttgaagagcgttgattttaattgagaaaacaa cttatgaaaaacataatctttacggtaacatgggttcaggaacaactcgttataaaaatg aaaaacgggtgggaatatcagtttgaattacacaaaaaactgcaagagcatcgtaggca ggcactaatattgataacattgaagtgaatataaaa
436.	lmcmrtiaktslalglitgtaitvttsvkaekiqstkvdkvptlkaerlaminitagans attgaantrqertpklekapntneektsaskiekisqpkqeeqktlnisatpapkqeqsq tttesttpktkvttppstntppmqstksdtpqspitkqaqtdmtpkyedlrayytkpsf efekqfgfmlkpwttrfmmvipnrfiykialvlgkdekkdkdgydndivfivlednkyq lkysvvgitktkskkvnhkvelsitkkdnqgmisrdvseymitkeelsikeldfklrkq lieknllyngmgsstivikmnggkyt felhkkqlqehrmagtnidnievnik
437.	atgaaaaataacaacgattgctaaaacaagtttagcactaggccttttaacaacagggtgta atcacacgcacaacgcagcagcaaacgcgacacaccatcttccactaaagtgggaagca ccacaatcaacaccgcctcaactaaaatagaagcaccgcaatcaaaaccaaaccgcgaca acaccgcctcaactaaagtgaagcaccgcaacaacacagcaaatgcgacaacaccgcct tcaactaaagtgaacacacctccatcaacaacacgcgacacacaaatgcaatctactaaa tcagacacaccacaatcgccaaccacaaaaaagtaaccaacagaaaataatcctaaattt aaagatttaagagcgtattatacgaacaaagtttagaatttaaaaatgagattggtatt attttaaaaaaatggacgacaaataagatttatgaatggtgtccagattatttcatatat aaaattgcttttagttgtaagatgataaaaaatattggtgaaggagtacataggaaatgtc gatgtatttgcgttttagaagaaaaataatataatctggaaaaatattctgtcggtggt atcacaaagagtaatagtaaaaaagttgatcacaaagcaggagtaagaattactaaggaa gataataaaggatcaatctctcatgatgtttcagaattcaagattactaaagaacagatt tcctttgaaaagaacttgattttaattgagaaaaaacttattgaaaaaaataatctgtac ggtaacgttgggtcaggtaaaattgttattaaaatgaaaaacgggtggaagtacacgttt gaattgcacaaaaaattacaagaaaatcgcatggcagatgtcattaatagtgacaacaaat aaaaacatcgaagtgaatttgaaa
438.	mkitttiaktslalglitgtaitvttsvkaekiqstkvdkvptlkaerlaminitagans attgaantrqertpklekapntneektsaskiekisqpkqeeqktlnisatpapkqeqsq tttesttpktkvttppstntppmqstksdtpqspitkqaqtdmtpkyedlrayytkpsf efekqfgfmlkpwttrfmmvipnrfiykialvlgkdekkdkdgydndivfivlednkyq lkysvvgitktkskkvnhkvelsitkkdnqgmisrdvseymitkeelsikeldfklrkq lieknllyngmgsstivikmnggkyt felhkkqlqehrmagtnidnievnik



439. gtgaattatcgtgataaaattcaaaagtttagtattcgtataatatacagttggtacattt  
tcaactgtcattgacgacattggtatttttaggattcaatcacacagcacatgctgct  
gaacacaaatcaaccagcaagcgtggttaaacagaaacacaaagtaaatgaacagact  
gagaattcgcgaatctcaagtacaaaattctcaaaattcacaaaatgggcaatcattatct  
gctactcatgaaaatgagcaaccaaatatttagtcaagctaatttttagtagatcaaaaagta  
gcgaatcatctactactaatgatgaacaaccagcatctcaaaatgtaaatcaaaaagaaa  
gattcggcgaacggctgcgacacacacacacagataaagaacaaagtaagcataaaacaaac  
gaagtcacattcgttaataaaaaatggaacgacaaatagagcggtcatgtagaaaatcat  
gaagcaaatgtagtacagcttcagattcatctgataatggttaacgtacaaatgaccga  
aatgaattacaagcgttttttgatgcaaatatcatgattatcgctttattgaccgtgaa  
aatgcagattctggcacatttaactatgtaaaaggcatttttgataagattaatcgttta  
ttaggcagtaattgatccaataaacaataaagacttgcaacttgcatacaagaattggaa  
caagctgttgctttaattcgtacaatgcctcaacgtcaacagactagccgacgttcaaat  
agaattcaaacgcgttcggttgagtcagagctgcagagccttagatcagttatcagactat  
caaaatgcaaatctcatcattatgttgaaaatgctaattgatgggttcgggctatccctgtt  
ggtagatataatcaatgcttcttagtaaaagggcgccatataatttaccacacacacattgga  
aatcatattgaaggcctctgactcaaaaggaaattgctcttatgacagcgaacacaaactgga  
gacgggttaccatgggttatgaatttaataaaggacatgctccacatcaaaatgatc  
ttttgggttgcatcaccagcagaccaagtgcagtaggaagaactgactttgtacagtt  
aatccagattggaacaaatgtacaatggagtcagtgagcagagcaggtgcaataaaacca  
cttcaacaaatgtgggaatattggagtaaatgatcctcatcgttccatgactttaaata  
agaataagtagtgccaaatgataatgatgactggcgaactgtccattatttcttttagaa  
gatttatctagagcagtgattatttttagtgaagctggagcgacactgctactaaagct  
tttggttagacaaaattttgaatatatttaattggtcaaaaactgctgaatcaccgggtggt  
ctcaaaagtttatactttcatcgttcaagtgatgcaagttatacaatttcatttaaaca  
caaggtccaactgttaataaattgtactatgcagcaggtggggcgtgcttttagagtacaat  
caattatttttagtcaagtcacactatacgtcgaatcaacgcaagaccatcaacacgtctt  
aatgggtttaagacaagtggttaactcgtacatctcgcataggtacaactaaacgtgtaga  
gtgagtcgaaggaattgtacaacgcaaaaaggtattagaaagtacaacctaataatagat  
gattttgttgatgactccttaagttatgttaagacgcagagtaataaagtgttaggattt  
tatctgaataatgcaaaatactaatgcttttagaccgggtggagcccaacaaatataatgaa  
ttcaaattaagtcaattatttactgatcaaaaattacaagaagcagcaagaactagaac  
ccaaataagattaatgattgggttcgactatcctgatgcttatggttaataagtgaaactta  
gttctctgttaacttaacggtattacctgaaatccaacataataattattttaaataat  
gacgatactcaaaatattgctgaaaaaccattttcaaaacaaagctgggcatccagtttct  
tatgtatagtcaggttaacaaagggaatgcttccgtgaatttaggtggttagcgttaacatct  
attcaaccattacgtatttaatttaacaagtaatgagaattttacagataaagattggcaa  
attacaggtattcccgctacattacacattgaaaactcgacaaatagacctataatggc  
agagaacgcaatattgaacttgttggttaacttattaccaggggttactttggaacgata  
cgttttgagcgttaagaacaattattcgaattcgtgttaaacacacatcaccaacaatt  
acaacgacagctgagcaattaaaggttacagcattacaaaagtgcctgttaattttcg  
ggaaatccggttggtatccatcggtcattgggtttatttagttgcaccaacaaatcaaaactacg  
aatgggtggttagtgagcagatcaaataccatcgtgttatagcacttgcgactggttaca  
cctgaaatcccaactgtcaattactatagcagcgaagattatgttggtattcatacca  
cctgtaggttaacaaattagagcagtagttattataataaagtagttgcatcattatg  
agttaactgctgttactattttgccagatgacattccaccaacaaatcaataactcgttgga  
ataaatgccaataactatcgagggcagcgaagtcaactttacaattgggtgctctctgtaga  
catctcgtgataaaaaatacaactattacgacattgcgaatgggttgacatcaaaattta  
acaaaagcggataagaataaatggctcattatctattacaggtagagtgagtagaactcag  
gaatttaacagtgattacattttaaagtgtagcgcagacgaatgtcaataatagcaca  
atgtagtgcattactcaacatggttcaattcagtaggttaaaattagtgaagatgctcat  
ccgattgtatttaggaaatactgagaaagtgttagtagtcaatccgactgctgtatctaat  
gatgaaagcaagcataattactgcctttatgaataaaaaccaaataaagaggatatt  
ttagcatcaactgacccagtaactgtcgataaataatggtaattgtcacattacattaccgt  
gatggctcatcgacaacgcttgatgtacaattgtgatgacatacgaaccagttgtgaaa  
cctgaaatcccaactgtcaattcgtgcttaaacacgcaacggtaacgattgctaaaggaca  
tcaatttagtattggtgatttaacaatttttactttaaagtaattggacaacctattcca  
agtggcacatttacaataattacatctgatagaactattccaactgcacaagaagttagt  
caaatgaacgcagggcagcaggttataccatataactgctacaaatgcgtatcataaagat  
agtgaagacttctatttagtttgaaaatcatcgatgtgaacacaccagaaggcagtaa  
cgtgtattctgacacacacatagatttaactactgtatgaattctcaaaagttaaaacaa  
gcatttatttaagcaaatagagatgtaattacgcttgcgaaggtgattttcagttaca  
aatcacacctaatggtgtaattgtaagtactattacagtaaatattataaaggtcgatta  
acgaaatcattccgctcaaacctagctaatatgaatttcttgcgttgggttaatttccca  
caagattatcagtgacatggacgaatgcaaaaattgcaaacagaccaacagatggtggt  
ttatcatgggtctgtagacataaaattctttaaatttactggttatgtagctacattaggtact  
caaaatcagcgaatgatttttaacaattgttaaaagcaacaaactacagtgcttggttg  
cgaaataacattactggttaattgaaaaatcacagcagaagctggcggaagacctaaactt  
agaacgactggttattcacaatcaaatgagcaactgatggtcaacgtcaattacggtg  
aatggtcaagtgattcaagtgtagacatcatcaacccctcaaacggttatgggtgggcaa  
cctgttacaattcaaatactcgtgcaaacacatagtaactcaactggttgtaacgtaaac  
gaacggcgagctaatggtgctggcgcatttacaattgaccacgttgtaaaaagtaattct  
acacataatgcaagtgatgcagtttataaagcacagttatacttaacgccataggttcca  
aaacaatatgttgaacatttaaatcaaaatacaggaaatactactgacgctatttaacatt  
tattttgtaccaagtgaacttagtgaatccaacaaatttcagtaggttaattactaatcat  
caagtgcttctcaggtgaaacatttacaataactattacagcgaatgataactttggtggt  
caactctgaactgtacaaaatacatcacaataatcaggtactgttgataataaccatcaa  
catggtttctgcaacggcaccacaaatgtgacatcagcaactaataagaacatcaatttatta  
gcaactgatacaagcggcaatacagctacaacttctgttaattgaacagtgaaacctttg  
cgtgataaataatcgagttggtacttcatcaacggctgctaatcctgtgagaatttgcgaat  
atttcgaataatgagcagtatcacaagctgatacaacgacaattatttaattcgttaacg  
tttactgaaacagtaacaaatagaagttatgcaagagcaagtgcaatgaaatcactagt  
aaaacagttagttaattgctgctgacttgaaataatgccaatgtcacagtaactgttact  
tatcaagattggaacaaatcaacagtgactgtacctgtaaagcatgctattccagaatc  
gttgacattcgcattacactgtacaaggccaaagacttcccagcaggttaattggttctagt  
gcactagattactttaagttatctaatggttagtgacattgcagatgcaactattacatgg  
gtaagtggaacagcgccaaataaagataatacacgctattggtgaagataaactgtaact  
gcacatacttatttgatggcgaaacaacgcggattacgaaacagcaacataaagta  
gtaagaactgtacccgaacatgctcttgaacagccagaggtggtttatcaccaggtggt  
tcagatatgtatgagcgaacaaatattgtaagccagtaataaattcttggtcgacaat  
gcgcaacataatgaatttccaatttgggtggaacataatggtcctaacaagaatggttgtagg  
atctactcgtcttatttagagtgacataatgataagacaacagaagatttaactatt  
ttatctaaagttaaacctgacccacctagaattgacgcaaacctctgtgacataaagca

ggctctacaaccaagaataaagttaataacgtattaaataactcgtcagtaaaatta  
tttaaacgagataatacaccattaaatgtcacaaatattactcatggtagcggttttagt  
tcggttgtgacagtaagtacgcgttaccaaatggcggaattaaagcaaaatcttcaatt  
tcaatgaacaatgtgacgtatacgacgcaagacgaacatggtaagttgttacagtaaca  
agaaatgaatctgttattcaaatgacagtgcaacagtaaacagtgacaccacaattaca  
gcaactactgaaggcgctgtatttataaagggtggcgacggttttgatttcggacagta  
gaaagatttattcaaaacccgcacatgggggcaacggttgcatggcatgatagtcagat  
acatggaagaatacagtcggttaacactcataaaactcgggttgtaacattacctaaggt  
caagggtacgcgttaagtgaagttccagtcacaaagtttatccagttgctaagtcacaaaggc  
ccatcagctgatgtgaaagggtcaaaatttgactaatggaacggatgcatgaactacatt  
acatttgatccaaatacaacacaaatgggtatcactgcagcatgggcaaatagacaacaa  
ccaaataaccaacagcagcggtgcaacatttaaatgtcgatgtcacatatccagggtatt  
tcagctgctaaccaggttcctgttactgttaattgtatatcaatttgaattccctcaact  
actatacgacaacggttggaggcacttttagcaagtggtacgcaagcatdaggatagca  
catatgcaaaatgctactgggttaccacacagatggatttactgataaaatggaatcgtgat  
actacaggttacaatgacgcaactgggtcagctatgaataaaccgaatgtggctaaagt  
gttaacgcaaaatagcagtcattctataacggacatacttttgcaacatctttaccagcg  
aaattttgtagtaaaagatgtgcaaccagcgaacacaaactgtgactgaacacagcgagga  
gcgattacaattgcaactggagcaaacacacagtgaaatacacatgccggtaacgtaacg  
acatacgtgataaattagttattaaacgtaattggtaacgttgtgacgacatttacagc  
gcgaataacagagtcctatgggtgaaagaagcatctgcagcaactgtagcaggtatttgct  
ggaactaataatgggtattactgttgacgaggtactttcaacccctgctgatacaattcaa  
gttctgtcaacgcaagggaagcggagagacagtgagtgatgagcaacgtagtgtatttc  
acagttgtcgcaccacaacccgaacacagcactactaagatttggcaaaatgggtcattt  
gatcacgccttaataatccatcaggacatttaattaatccaactcaagcaattggatatt  
gcttacactgaaaaagtggttaattgggtgcagaacatagtaagacaattaatgttctgt  
ggtaaaatataatcaatggacaattgccaataagcctgactatgtaacgttagatgcacaa  
actggtaagtgacgttcaatgccaatactataaaacaaatctcatcaatcacaattact  
ccgaagcaggtacaggtcactcagtaagtagtaattcaagtagacattactgcaccggca  
gctcatcagccttaacacacaaactgaaattgtgaagattatgggttcaaatgtaacagcagc  
gaaattaacaatgcagttcaagttgctaataaacgtactgcaacgattaaaaatggcaca  
gcaatgcttactaattttagctgggtgtagcacaacagcagattcctgtgacagtaacttac  
aatgtgttagtactgaagaagtacaagagtcctatttcacaaagcggataaacagtgag  
ttaatcacagctaaaaatcatttagatgatccagtaagcactgaaggttaaaagccaggt  
acaattacgcagtaacaataatgcaatgcataatgcgcaacacaaatcaactactgcgaaa  
acagaagcacaacaaagtgatataatgagcgtgcaacaccacaacaaagtttctgacgca  
ctaactaaagttcgtgacgacacaaactaagattgatcaagctaaagcattacttcaaat  
aaagaagataaataagccttagtcaacgtctaaaaataacttacaaggttctgtgaaccaa  
gtaccatcaactgctgggtatgacgcaacaaagttatgataactataatgcgaagaagcgt  
gaagcagaacactgaaataactgcagctcaacgctgttattgacaatggcgatgcaactgca  
caacaaatttcagatgaaaaacatcgtgtcgataacgcatttaacagcattaaaccaagcg  
aaactgactttaaactgcagatacacatgccttagagcaagcagtgcaacaaatgaaatgcg  
acaggtacaacgactgggtagaagcggcgaagttactgcttacaataatcgattcgt  
gcaactcaaaagtgacttaacaagtgctaaaaatagcgttaagtatttcaaaaagcca  
ataagaacagtcacaagaagtgcaatctgcgttaacaaatgtaaatcgtgtcaatgagcga  
ttaacgcaagcaatataatcaattagtagcttttagctgataatagtgctttaaactgct  
aagacgaaacttgatgaagaatacaataaactcagtaactactgagtggtatgacacaaat  
tcaatccaagcatatgaaaaatgctaaacgtgcggtcaaacagaatcaacaaatgcacaa  
aatgttattaacaatgggtgatgcagctgacacaaatggcgagaaaaacaaagta  
gaagaaaaataataagcttaaaacaaagcaattgtggatttaactccagacttggcaca  
ttacaaactgcacaaactcagttgcaaaatgatattgatcagccacagtagcagctgggt  
atgacaagcgcattctattgcagcatttaataaaaaactttcagcagctagaactaaaatt  
caagaaattgatcgtgtatttagcctcacatccagatgttgcgacaatcagtcacaaacgtg  
acagcagcgaatgccgctaaatcagcacttgatcaagcagcgaatggcttaacagtcgat  
aaagcgcctttagaataatgcgaaaaatcaactacaatatagtttagacagcacaacaaag  
acaactggtagacacaaagactctataatgcatacaatgcgaagtttaacagctgcacgt  
aataagattcaacaaatcaatcaagttatagcaggttcaccgactgtagaacaatataat  
acaaatcagcttacagcaaatcaagctaaatctgatttagatcatgcagctcaagcttta  
acacagcagataaagcgcgcttcaaaactgcgaaaaacgcaattagaacaaagcatttaacaa  
ccaacgagatacaacaggtatgacgacgcttcgttaaatgcgtacaacaaaaattacaa  
gcagcgcgtcaaaagttactgaaatatacaagttgtgaatggcaacccaaactgtccaa  
aatatcaatgataaagtgacagaggcaacaaagctaaagatcaattaaatacagcagcgt  
caaggtttaacattagatagacagcagcgttaacaaactacatgggtgcatctaaactta  
aaccagcacaacaaaaatatttcacgcaacaaatataatgctgctcaaaatcatgctgag  
cttgaacaaatataagttcaacattacggctttaaatactgcgatgacgaaattaaagac  
agttgtgaggataataatacaatataatcagatcaaaattacactgacgcaacaccagct  
aataaacaagcgtatgataatgcagtttaagcggctaaaggtgtcattggagaacagact  
aatccaacagtggtatttaacacagtgaaacaaaagcagcatctgttaaatcgacgaaa  
gatgctttagattggtcaacaaaacttacaacgtgcgaaaaacagaagcaacaaatgcgatt  
acgcatgcaagtgatttaaaccaagcacaacgaatgcatcaacacaaagtgaaatagt  
gcacaaaacgtgcaagcagtaaatgatattaaacaaacgactcaaaagcttaaatactgct  
atgacaggtttaaaacgtggcgttgctaatcataacaaagtcgtacaagtgataattat  
gtcaacgcagatactaaataagaaaaatgattacaacaaatgcataacacatgcgaatgac  
attataatggtaatgcacaacatccagttataacacaaagtgatgttaacaaatgcttta  
tcaaatgtcacaagttaagaacatgcattgaatgggtgaagctaaagttaaatgctgcgaaa  
caagaagcgaataactgcatttaggtcatttaaacaaatataaataatgcacaacgtcaaaac  
ttacaatcgcaaatataatgggtgcgcatcaaatgatgcagtttaatacaatgaagcaaat  
gcaacaaacttgaaatagtgcaatgggttaacttaagacaagctgttgagataaagatcaa  
gtgaacagctacagaagattatgcggatgcagatacagctaaacaaatgcataacacag  
gcagtttcaagtgccgaacaaatcatttaatacaacaaacaaatccaaacgattgtctgtgat  
gatgttaactcgtgcaactcagctgttacttcaataaaaaatgcaattaaatgggttatgaa  
aaattagcacaactcaaaacagatgtgcagagcaatttgatgcattaccacatttaaat  
aatgcacaaaaagcagatgttaaatctaaatataatgctgcatcaaatatgctggcgta  
aatactgttaaacacaaaggtacagatttaatacagcagtggttaacttgcaaggtgca  
atcaatgatgaacaaacgagcgttaatagtcacaaactatcaagatgcgacaccttagtaag  
aaaacagcatacacaatgcgggtacaagctgcgaaagatttttaataaatacaaatgggt  
caaaataaaacgaaagatcaagttactgaagcgaatgaatcaagtgaaattctgctaaaaat  
aacttagatgggtacgctttatttagatcaacgcaagcaaacacagcaaacagcaggttaaat  
aatatgacgcatttaacaaactgcacaaaaacgaatttaacaaacaaatataatagtggt  
actactgtcgtggtgttcaaacggttcaatcaaatgcaaatacatagatcaagcgaatg  
aatacgttaagacaaagatttgccaacaaagatgcgactaaagcaagtgaaagattacgta  
gatgctaataatgataagcaaacagcatataacaaacgagtagctgctgctgaacagatt

attaatgctaatagtaatccagaaatgaatccaagtagcttacacaaaaagcagagcaa  
gtgaatagttctaaacggcacttaacgggtgatgaaacttagctgtgcaaaacaaat  
cgaaacacgtacttaaacacattgacaagtagttacagatgctcaaaagaacaaatttgatt  
agtcacaaattactagtcgacaaagagtgagtggttgatgactgtaaaacaaaaatgcgcaa  
catctagaccaagctatggctagcttacagaatgggtatcaacacgaatctcaagtgaat  
tcactctgagaaatctcgatgctgatacaaaataaacacaaagagtagataatgctatt  
actgcagcgaaagcgattttaataaatacgacaggtccaaacactgcgcaaaatgcagtt  
gaagcagcattacaacgtgttaataatgcgaaagatgcattgaatgggtgatgcaaaatta  
attgcagctcaaaacgcagcgaaacacatttaggtactttaacgcatatcactacagct  
caacgtatgatttaacaaatcaaatttcacaagctacaaacttagctggtgtgaaact  
gttaaaacaaaatgcgaatagtttagatgggtgctatgggttaacttacaaacggctatcaac  
gataagtcaggaacattagcgagccaaaacttcttggtgctgtagcgaacaaacgtaat  
gcatacaatcaagctgtatcagcagccgaacacattttaataaaacaaactggaccgaat  
acagcgaaaacagcagtcgaacacagcacttaataatgttaataatgcgaaacatgcatta  
aattggtacgcaaaacttaacaaatgcgaaacagcagcattacagcaatcaatggcgca  
tctgatttaatacaaaaaaaagatgcattaaaagcacaagctaaatgggtgctcaacgc  
gtatctaatgcacaagatgtacagcacaatgcgactgaactgaacacagcgaatgggcaca  
ttaaaacatgccatcgagataaagacgaatagcttagcaagcagtaaatatgttaatgcc  
gtagcagtaaaacaaaatgcttacacaactaaagttaacaaatgctgaacatattattagc  
ggtacgcaacgggtgtgtacgacaccttcagaagtaacagctgcagcgaatcaagtaaac  
agcgcaaaacagaattaaatgggtgacgaagattacgtgaagcaaaacaaacgccaat  
actgctattgatgcattaacacaatttaatacactcacaacgctaaatgaagcaacaa  
gtgggacaagcgaatagattagaagacgtacaaactgttcaacaaatgggacaagcattg  
aacaatgcaatgaagcgttaagagatagatttgcacgaacaaacagcgaacaaacgta  
caaaactatacagacgcaagtcgaataacaaatcaacataataatagcgtgtgtcaaat  
gcgaaggtatcatttaacaaactaaacatccgactatggatagctagtcgattacccaa  
gctacacacaaagtaataatgctaaaaatgggttaaacgggtgctgaaaacttaagaaat  
gcatacaacactgctaaagcaaaacttaatacattatcacacttaacaaataaaccaaaa  
tctgccatctcatcaaaatgtatcgtagcaggtcatgtgagtgaggttaactgctactaaa  
aatgcagcaactgagttgaatacgcgaatgggttaacttggaacaaagctacatgatcaa  
aacacagttaaacaaagtggttaaatctactgatgcagataaagctaaacgtgatgcgtat  
acaaatgcggtgaagcagagctgaagcaatctgaataaaacgcaaggtgcaaatacgct  
aaacaagatgttgagcggttatcaaaatgttcaagtgctaaaaatgcatggaatgggt  
gatcaaaacgtttacaaatgcggaagatgcagctaaaaatgcatataaacttaacgtca  
atcaatgcacaaaaacgtgacttaacaaactaaatgtatgaagcaacaaactgtagct  
ggtgtgaagctgtatcattacagctacacaaatgaatacagcgatggctaaacttgcaa  
aatggtatttaataaatacaaaactacactagcaagtgaaaactatcatgctgattca  
gataagaaaactgcttatactcaagcgttacgaacgcagaaaatattttaataaaaaat  
agtggtacaaattagacaaaactgcggtgaaaacgctgtgcaaaagttgctaaatgctg  
aaaggtgcctaaatggttaaccataattagagcaagctaaatcaaatgcaaacactact  
ataaacggacttcaacatttaacaaactgctcaaaaagataaattgaacaaacaaagtgcaa  
caagcacaaaaatgttgaggtgtatgatactgttaaatcaagtgcaacacattaaatgg  
gctatgggtacgtttaaaaaatagcatacaagataaacacagctacgaaaaatggcacaac  
tatcttgatgctacagaacgttaacaaacaaactataacaaatgctgtgtagtagtgaat  
ggtgcttaataatgcacaaagcaatccaaatggtgtagtaagcaatgaacaaatcgct  
acacaaagtcacacaaagcaaaatgcattagatggtacacataatttaacgcgaagcgaaa  
caaacagcaacaaatgcatcgatggtgcttaacttaataaagcgcaaaaagatgcg  
ttaaagcacaagttacaagtcgcaacgtgttgcaaatgaacaaatgtaacaaact  
gcaaatgaacttaatacagctatgggtcaattacaacatgggtattgatgataaaatgca  
acaaaaaaactcaaaaatctcgtagcgtgaacaaagtaagaaaactgcttatgatcaa  
gctgtagctgctgcgaagcaattttaataaaacaaacaggttcaaattcagataaagca  
gcaggtgacgctgattacaacaaagtaacaaagtagcaaaagatgcattgaatgggtgatga  
aaactggcagaagcgaaagcgagcgttaacaaacaaacttaggcactttaaacatattacg  
aatgcacaacgtactgacttagaagcgcaaaacaaatcaagcgacgactgttgatggcggt  
aatactgtaaaaacaaatgccaatacattagacggcgcaatgaatagcttacaaggttca  
atcaatgataaagatgcgacattaaagaaatcaaaatctcttgatgctggaatcaaaa  
cgaaatgcataacgcaagctgtcacagcggtgaagcgattttaataaaacaaactggt  
ggttaacacatctaaagcagacgtgtgataatgcattaaatgcagttacaagagcgaaagcg  
gctttaaatggtgctgacaacttaagaaatgcgaaaacttcagcaacaaatcagattgat  
ggtttacctaacttaacacaattacaaaaagcaacttgaagcatcaagttgaacaagcg  
caaaatgtagcaggtgtaaatgggtgttaagataaaggttaactgcttaaatactgccaatg  
ggtgcttacgtacaagttacaaaatgataatcagcagcaaaacaaagtcacaaatctctt  
gatgcatctgacagcaacaaaaataatataactactgctgtaaaatgcaaatggtggt  
atcaatgcaacgaacaaatccaaatggtgtagtaagcagtttaaggtgcaaatgcaaatcaa  
gtcaatcaacaaagcagcgttaaatggtgcacaaaacttagctcaagctaaaacaaat  
gcgacgaacaaattaacaaacgcacatgacttaaaccaaaaacaaagatgcattaaaa  
acacaagttacaatgcacaacgtgtatctgtagcaataacgttcaacacactgcaact  
gaattgaacagtcgagtagcagcacttaagcagctattgctgataaagaaagacaaaa  
gcaagcggttaattatgtcaatgctgatcaagaaaaacgtcaagcgtatgattcaaaagt  
actaacgctgaaaatattcattagtggtacacggatgcgacattacagcgaatgacgta  
aatagtcggcatcacaagtcattgcggtcaaaacagcattaaatgggtgataacaaactta  
cgtgtagcgaagagcatgccaacatacaattgacggcttagcacaattgaataatgca  
caaaaagcaaaattaaaagaacaaagttcaaaagtgcaactacattagatggtgttcaact  
gttaaaaaatgttctcaaacgttgataacagcagtagaaaggcttaagagatagatttgcg  
aatgaagcaacaaataaagcaggtcaaaactacactgacgcaagtcacaaatctcgtaac  
gagtagcagctgagttactgtagcaaaaagcaatcatttaacaaacatcgaaacccaaag  
atggaacccaaatattacgcaagtaacatcacaagtgacaactaaagaacagcgattta  
aatggtgtagcgaacttagctcaagctaaagcaactgcgaaaaacaaactgaaataactta  
acatcaatgaacaaatgcacaaaagatgcgttaacgcgtgacattgattggtgcaacaca  
gtagctggtgttaaatcaagaaactgcaaaagcaacagaattaaataacgcgaatgcatagt  
ttacaaaatggtatcaatgtagtagacacaaacaaacaaactcagaataacctagatgca  
gagcgaagtaagaaatcagcttatgatacagcagtaaatgcagcgaagcaattttaaca  
aaagctagtggtcaaaatgtagacaaagcagcagttgaacaaagcattgcaaaatgtgaac  
agtacgaagacggcgttgaaacggtgtagcgaattaaatgaagctaaagcagctgcgaaa  
caaacgttaggtacatttaacacacatttaataatgcacaacgtacagcgttagacaatgaa  
attacacaaagcaacaaatgttgaaggtgttaatacagttaaagcgaagcgcaacaaatga  
gatgggtgctatgggtcaattagaacacatcaattcggtgataaagacacagcgttacaaagt  
caaaatatacaagatgctgtagtgcataacgaactgcttattctcaagcagtaaatgca  
gcagcaactattttaataaaacagctgtagcgttaatacactaaagcagatgttgaaga  
gcaatgcaagctgttacacaaagcaaatctgcatataacgggtattcaaaacttagatcgt  
gcgaacacagcgtgtacacagcagttacaaatgcttcggacttaatacaaaaacaaaa  
gaagcattaaaagcacaagtaacaaagtcaggacggttatctgcagcaaatgggtgtgaa

catactgcgactgaattaaatactgcatgacagctttaagcgtgccattgctgataaa  
gctgagacaaaagctagtggttaactatgtcaatgctgtagcgaataaacgtaacgcatat  
gatgaaaaagttacagctgcccgaataatcgtagtggtacaccaacacacgtaaca  
ccagcagatgttacaatgcagcaacgcaagtaacgaatgtaagcgcaggttaaacggt  
aatcacaatttagaagtagcgaaaacaaatgctaactgcaattgatggtttaactct  
ttaaattggtccgcaaaaagcaaaacttaagaacaagtggtgcaagcgacgcttgcca  
aatgttcaactgttcgtgataatgcacaaacattaaacactgcaatgaaaggtctacga  
gatagcattgcaatgaagcaacgattaaagcaggtcaaaactacacagatgcaagtcac  
aacaaaacactgactacaacagtgagtcactgacgcaaaagcaatcattggtcaaaac  
actagctccatgaatgagcgcaagaaatcaatcaagcgaagacaaagtgacagctaaa  
cacaacagcgttaaacggtcaagaaaacttaagaactgacgcaaaacaaatgcgaagcaacat  
ttgaacggcttaagtgacttaactgacgctcaaaaagatgagtgaaacgtcaaatcgaa  
ggtgcaacgcatgttaatgaagtacacaagcacaacaaatggtggaatgcatataatata  
gctatgacgaacttgaataatggtattcaagatcagaatataagcaaggtggttaac  
ttcactgtagccgacgaagcgaacgtaatgcataacaaatgagtgacgcaagctgaa  
caaattttaataaagcacaaggtccaaatacttcaaaaagcgggtgcgaactgctta  
gaaaatgtacaacgctgtcaaaaacgaattgaacggttaacaaatgttgcaacgctaa  
acaactgcaaaaatgcatgaaataacctaactcaatcaatgaatgcacaaaagaagca  
ttgaatacacaatgaaggtgacacaacagtgtaggtgtaaatcaagtgcttacaacg  
gcatctgaattaaatacagcaatgagcaacttacaataatggtatttaagtgagcagct  
acaaaagcagctcagaataatactgtagcagatagagaaaaacaaactgcatacaatgac  
gctgttaacagcagcttaaacggttatagataaaaacagctggttcaaatgacaataaagca  
gctgtgaaacagcattacaacgctgtaactgcttaaacagcattaaatggtgacgag  
cgattcaatggaagcgaagaacacagctaaacaaacagtagcgcaatgtcacacttaact  
gatgctcaaaaagcaacttaacatcgcaaaatcgaaagtggtacgactgttgacggtgtt  
caaggtattcaagctaatgcccgtacttttagatcaagcaatgaatcaatgaacaaaggt  
attgcttcaaaagtagcgactaaatcaagcgaagattatcaagcgcgaatgagattta  
caaaaatgcatacaatgatgcggttaacttaactgtagggtatttagtgcaacgaaataac  
ctgaatgaatcctgatacaatgaacaaaagcgaagcgaatgaacagtgcaaggtct  
gcattgaacggtgatgaaaaattagcagcagcaaaaacaaactgcgaatcagatatacgtt  
cgtttgacagacttgaacaatgcacaacgaactgcccgaatgctgaagtggtacagca  
cacaactcttgacgctgtcacagcgggtcaaaaataaagcaacatcgtaataacagcgtg  
ggttaatttgaacatgcaactgtgtaaaaggaataacgaacagtagtgtaataacacac  
gatgcggatcaacaaaacacaaagcgtatgatactgcggttacacagcagaagcaat  
actaatgctaactgacgcaacgcaatgaacacaaagttcaagcagcactaaaccaatg  
aatcaagctaaaaatgacttgaatggtgataataaagttgctcaagcaaaagtagcgc  
aaacggtgcattagcttcatatagtaacttgaataatgacgaactcaactgacgaactagt  
caaatgcaatgcaacgacagtagcagggcgaactgctgcacaaaatctgtaataagaa  
tcaatcacgcaatgggtcaacttcaaaatggtataaatgacaaaacacgtttaaaacaa  
caagtgaaactttacagatgctgacaaaggtgaagaagatgcttacacaaatgctgttacg  
aatgctcaaggtatttagataaagcacaacggtcaaaatagcgaagcgaaggtgaa  
gctgcattaaatcaagtaacgactgctaagaatgctttaaacggtgacgcaaatgtaaga  
caagcaaaatcagatgcgaagcaaaccttaggtacattaacacacttaataatgcacaa  
aaacaaagatttaacatcacaaatcgaagggcgaacacacagtcacgggtgaaatggtgtt  
aaaacgaaagcacaagacttagatggtgcaatgcaacgattacaatcagctatagcaaat  
aaagatcaaacataagcgcagcgaataatcacatgcagcagatccaactaaagaaaacagca  
tttgataatgctatcacacaagctgaatcttacttaataaagatcacgggtgcgaataaa  
gataagcaagctgttgaacaagcaattcaaaagtgtaacgtctactgaaatgctttgaac  
ggtgacgcgaacttacaacgcgctaaaactgaagctatacaagctatcgataacttgaca  
catttgaatcacccacaaaaaacagcattaaaacacaaagtgaaacgctgcgcaacggtgta  
tcaggtgtaactgtatgaaaaatagtgctacatcacttaataatgctgtaggtcaatga  
aaacaaagcaatgctgatcatgacacaattgttagcttagtggttaatacactaacgcgag  
ctgataagcaaggtgcttatactgtagcataatgctgcgcaaaaacattgtaaatggt  
tcgctaatgtgattacaatgcagcagatgttacagcagcaacacacagctgtaataat  
gctgaacaggtttaaacggtgatacaaaccttagcaactgcgaagcaacagctaaagat  
gcattacgtcaaatgacacatttatctgtagcacaacaaacaaagtattactggtcaaat  
gatagcgcgacacaagtaactggcgttcaaaagtgtaagacacgcgacaaactcttgat  
aatgcaatgaatcaacttcgaatagatttgcaataaagatgtagtaaaagcgagtcac  
ccatattgtgtagcagatagagataaacaacaaatgcatacaatcacagcagttacaatgct  
gaaaaatcattaatgcaacgagtcagccgacacttgatccatctgcagtaacacaagca  
gctaatcaagtgagcactaaacaaactgcgcttaattggtgcacaaaacttagcgaataaa  
aagcaagaacgactgcttaacatcaaccaatgaatgaatttaataatgctcaaaagcaa  
gatttaatacgcgaagtgacaaatgcacaaatattagcacagtaaatcaagtgaaaact  
aaagctgaacaattagatcaagcaatggaacgtttaatcaacggaatccaagcaaaagat  
caagtgaaacaaaggtttaactttacagatgcagatccagaaaaacacacagcatacaac  
aatgcggttaactgctgtaaaatatttataatcaagcaaatggtacaaatgcgaaccaa  
tcacaagttgaagcagcactttcaactgtaacaactacgaaacaaagcgttgatggtgat  
agaaaagttaacagatgcttaaaaacaaatgcaacacaaacatttatctacgttagataactta  
aacaatgcacaaaaggtgctgttactggaacatcaatcaagcgcacactgtagtgaa  
gtaacgcaagccattcaaacgcgtcaggaactgaatacagcagtggttaacttgaataat  
agcttgaatgataaagacactacacttggcagtcacaaactttgcagatgcagatccagag  
aagaaaaatgcatacaatgaagcgggtcataatgctgaaaatattttaataaattcaca  
ggtacgaacgctgctaaagatcaagttgaagcagctatgaatcaagtgaaatgctacaaaa  
gcagcgttaattggtactcaaaaccttgaaaaagctaaacaacacgcgcaaaatagcaaat  
gacggtttgaagcatttaacaaatgcacaaaagagggcattaaaacaaatggtacacaa  
tcgactactgttcgaagcacaaggttaatgagcaaaaagcaaaacattgttgatgcagca  
atggacaaattacgtcaaggtattgcagataatgcgacaacaaaacaaaacaaatattat  
actgtagcaagtcagaataaaaaggtgcgtacaaatgctgtgcacaaactgcacaaggt  
attattgatcaaaactcaagtcacacttttagatccgactgttatcaatcaagctgctgga  
caagtaagcacaactaaaaatgcatataatggttaagtaaaacactagagcagcgaacaa  
caagcgtcacaatcattaggttcatttagataacttaataatgctgcgaacaaacacagtt  
actgatacaatgaatggcgcgcatactgttgatgaagcaaatcaaatgaagcaaatgctg  
caaaacttaatacagcagtggttaacttgaacaaagcgaatagctgacaagatgctacg  
aagcgcagcttaacttactgtagcagatcaagcaaaacaaacagcatataacactgct  
gttcaaatgctgaaatattcatttcaaaagcttaattggcggcaatgcaacacaaagctgaa  
gttgaacaaagcaatcaaaacagtttaactgctgcaaaacaaagcattaaatggttaatgccaac  
gttcaacatgcgaagcgaagcaacagcatttaataatagctcctaagcttaaccaa  
gcacaaaagcgcattaaaacacaaagttcaaaatgcaactactgtagctggtgtaaac  
aatggttaacaaacagcacaagaggttaacaaatgctatgacacaaataaaacaaagcatt  
gcagataaagaacaaaacaaagctgtaggttaactttgtcaatgcagatcctgataagcaa  
aatgcataataacagcagtagcgaagctgaagcatttaattagtgctacgcctgagttt  
gtcgttacacctagcgaatatttgcagcgttaataaagttacgcaagctaaaaatgat

ttaaatggtaatacaaaacttagcaacggcgaaacaaaatgttcaacatgctattgatcaa  
ttgccaaacttaaaccaagcgcaacgtgatgaatacagcaaaacaaatcacgcaagcaaca  
cttgtaacaaacgtcaatgctattcaacaaagcgcgcaacacgcttaatgacgagatgaca  
caattgaaacaaaggtattgcaataaaagcacaacaaataaaggtagcgagaactatcacgat  
gctgtactgacaaagcaaacagcatatgataatgagtaacaaagcagaagaattgtta  
aaacaacaacaaatccaacaaatggatccaatacaatcaacaaagcattaaactaaagt  
aatgacacaaatcaagcacttaacggtaatacaaaaattagctgatgcaaaacaaatgct  
aagacaacacttggtacactagatcatttaaatgatgctcaaaaacaaagcgctaaacaa  
caagttgaacaagcaccagatattgcaacagttataatgttaagcaaaatgctcaaaa  
ctgataatgctatgactaacttaacaaatgcattacaagataaaactgagacattaaat  
agcattaaactttactgatgagatcaagcagaagaatgcttatactaatgctgttca  
catgcaagaaggtattttatctaaagcaaaatggcagcaatgcaagtcaaaactgaagtggaa  
caagcgatgcaacgtgtgaacgaagcgaaacaaagcattgaatggtaatgcaaatgtacaa  
cgtgcaaaagatgcaagcgaaacaaagtgattacaatgcaaaatgatttaaatcaagcgcaa  
aaagatgcatttaaacacaaagtcgattgctgcaacaaatgttgcaaatgtaaacacgatt  
aagcaaacagcacaagatttaaatcaagcaatgacacaaatgaaacaaaggtattgcaagat  
aaagacaaactaaagcaaaatggtaactttgtcaatgctgatactgataagcaaaatgct  
taacaacaaatgctgttagcactgctgaacaaatatttagtggtacacaaatgcaaacgtg  
gatccacaacaaagtgctcaagcgttacaacaaagtgaaatcaagctaagggtgatttaaac  
ggtaaccataacttacaagttgctaaagcaatgcaaaatcacagcattgacagttacca  
aacttaaatcaaccacaaaaaacagcatttaaaagacaaagtgctgcatgcaagactgtt  
acaggtgttaatgctatttaagcaaaatgctgagtgcttaataatgcaatgggtacattg  
aaacaacaaatcaagcgaaacagtcaggtaccacagtcagttgactttacacaagcggtat  
caagcaaaacaaacagcatatacaaatgctggttaacaaagcgcaacaaatcgcaaatggc  
ataccaacacctgtattgacgctgatacagtaacacaagcagtgacaactatgaatcaa  
gcaagaatgcatataacgggtgatgaaaaattagcacaagcgaaacaaagagcttagca  
aatctgtatagcttacgcatatttaaatcaaccacaaagtgatgcattacgtaacacaaat  
aatcaagcacaagcggttagctacagttgaacaaactaaacaaatgcaacaaatgtgaat  
acagcaatgagtaacttgaacaaaggtattgcaacaaagatactgtcaaaagcaagtgag  
aactatcatgatgctgagcgcatgaacaaacagcatatacaaatgcaagtgcttcaagcg  
gaaggtattcaatcaaacgacaaatccaacgcttaaccagatgaaataaacagtgca  
ttaactcaagtgactgagtgtaaaaatggcttaaacgggtgaagtgaaatgggcaactgaa  
aagcaaaatgctaaagatgctgaagtgagtgagtgagtgagtgagtgagtgagtgagtgag  
gcatataaagggtcaaatcgatcaatcgctgaaatgctacagtgaaacaaagtgtaacaa  
acagcaacgagccttagatcaagcaatggatcaattatcacaagctattatgataaagct  
caaacattagcggaagcgttaattacttaaatgagatcctgacaacaaatgctgataaaa  
caggcagtagcaaaagctgaagcattattgaataaacaagtggtactaatgaagtacaa  
gcacaagttgaagcagcactaatgaagtgaaagcgagcgaaacaaagcattaaatggtaat  
gacaatttgcaaaatgcaaaacaaacaaagcaaaacaaacaaatggcgaaacttaacacact  
aatgagtgcaaaaacaaatcatttgaagtgcaaatcaacaagcgccactgtgtacagat  
gtcactacgatttaatacaaaaagcacaacagtgatcatgagtggaattatgaagaat  
agtggtgctgataatcaaacgacatttagcgttgaagattatcatgatgcaactgcgcaa  
agcaaaaatgactataaccaagctgtaacagctgcttaataatcattatcaaacataca  
tcgctacagtgatgaaatcgagatgagtgtaaatgggtgcaacgacacaaagtgaaataacgaaa  
gttgcattagatggtgagtaaaaccttgcaagcagtgaaacaaacagcaaaacagagact  
gatcaatttagatcatttgaataatgcaaaagcaacagtgataatcacaatcagcaaa  
tcactgataatgctgagtgtaattggtcacaacaaacagcagaatctttaaatactgctg  
atgggttaacttaattatgagtgatgagatcatcaagcgttgaacaaagtggttaacttc  
atcaatgctgatactgataaaaactgcttataatcagcggttaaatgaagcagcagca  
atgatttaacaaacaaactggtcacaatgcaacaaacagaaagtagaacaagctattact  
aaagtccaacaaacacttcaagcgttaaatggagacataaatttacaagttgctaaaaaca  
aatgcaagcgaagcaatgagtgcttcaacaagcttaaatgagctcctcaaaaacagcatt  
aaagaccaaagttacagctgcaactttagtaactgagtgcttcaaatgaaacaaatgag  
aatagcgttaaacaaagcaatgcatggtttaaagacagagcattcaagataacgcagcaact  
aaagcaaatgcaaatatcaacgaagatcaacagagcaacaaacatgataagctggt  
gttcaagcgcaaaataatattatcaatgaacaaactgcaacatttagataaataatgaggt  
aatcaagcagcgcaacactgtgaatcaacgaagcagcattacatggtgagtggaagtt  
caaaaatgataaagatcatgctaaagcaaacggttagtcaattagcacatcacaacaaatgca  
caaaaacataggaagatagcttaattgagtggaacaaactagaacagcaggttaagcaa  
gatttgactgaagcacaagcattagatcaacttatggatgcatatacaacaaagattgct  
gacaaagatgcaacacgtgagcagtgcatatgtcaatgcagaaacgaataaaaaacaa  
tcctatgagtgagcaggttcaaaatgctgagtgctatcattgaggttaaaatcaact  
atcaataaagggttaattgatacagtgagcagtgagtgagtgagtgagtgagtgagtgag  
gatggtgtgaacaggttagctcaagataaagcaaacgctggaagattctcctaatacttta  
gatcaataaacacagctcaacaaacagcgctagaacaaatcaaaatgaatgcaacaaact  
cgtggcgagtagcacaacaaatgaagcacaagcatttaaccaagcaatggaagct  
ttacgttaatgacattcaagatcaacagcaaacggaagcggttagcaagtttatcaatgaa  
gataaaaccacaaaagatgcttaccagcagcaggttcaaaatgcaaaagatttaattaat  
caaacatacaatccaacgcttgataaagcacaagttgaacaattgacacaagctgttaac  
caagctaaagataaacctacaggtgatcaaaaacttgcaagcagataaacaacatgaggt  
actgatttaaatcaattaaatggtttgaataatccgcaacgctcaagcacttgaaagccaa  
ataaacacagcagcaactcgtggcgaagtagcacaacaaattagctgaagcaaaagcgctt  
gatcaagcaatgcaagcattacgttaatgatttcaagatcaacaaacaaacagaatcgtgt  
agcaagtttatcaatgaagataaaacggcaaaaagatgcttaccagcagcaggttcaaaat  
gcaaaaagatttaattaaacaaacaggttaacaaactcgacaaatcacaagtagaaca  
tgacacaacagcagtaacaaactgcaaaagataatctacatggtgacaaaacttgctcgt  
gatcaacaacagcagtaacaaactgtaaatgcatgcaaaacttaaatcatgcaacaacaa  
caagcattaaactgagtgctataaatgcaagcgctacaagaacagaggttgcaacaatggt  
caaacgtgctgagcttgatcacgagtggaacattgaaaaataaagtgatcaagtg  
aatcacagataaggtcacaacaaatcacactgaagcgctcaactgataaaaagaaagcagta  
gatcaagcgttacaagctgcaagaagcattacagatccaactaatggttcaaatgcaaat  
aaagcagctgtagacaaagatttaactaagcttcaagaaaaagaaatgagtttaaggt  
aatgagagagtgctgagctaaacacaaagcgaaacaaactattgaccaatcaacacat  
tcaaatgctgataaactgcaactgctaaacaaacatttgtaagcgacgaaacttcaa  
ccaatgctgaatttagtagatcaagcaacgcaattgaaatcaatctatggatcaattacaa  
caagcagtttaataacatgctaaacgttgagcaaacgttagattacacacaagcagattca  
gataacacaaatgcttataaacaagctattgctgagtgctgaaatgattgaaacaaat  
cgcaataaagcaacaaagtggtcaagcacttcaaaatattttaaagcaaaaacagcatt  
aatggtgtagaacgtgtagcacttgctaaacaaatggtaaacatgacatcgacaaatg  
aatgcattaacaaatgctcaacaagatggatttaaaggtcgcatcgatcaatcaaacgag  
ttaaatcaaatcaacaaatgtagatgaggtcaagcacttaactcgtaagtgatgacaa  
tgctcaacaagaactcagtgcaatgaagcagcagaaaggtgacagcaactatgctcaat  
gcagatcacaaagtcacaacaaatgattgataaagcggtgataaagcgaacaaagcactt

gataaatcgactgggtcaaaacttaactgcaaaacaagttatcaaatataatgatgcagtc  
actgcagctaaagaaagcattaaatgggtgaagaagacttaataatcgtaaagctgaagca  
ttacaaagattggatcaattaacacatctaaacaatgctcaaagacaattagcaatccaa  
caaatataatgctgaaacgctaaataaagcatctcgagcaattatagagcaactaaa  
tagataatgcaatgggtgcagtaacaataatattgacgaacagcacttgggttatc  
agcagcacaattacatcaatgcagatgacaatttgaagcaaatatgataatgcaatt  
gcgaatgcagcacatgagttagataaagtgcaaggtaatgcaattgcaaaagctgaagca  
gagcaattgaaacaaaattattcgatgctcaaatgcatataatggagaccaaaacct  
gcaaatgccaagataaagcaaatgcgtttgttaattcggttaaatggattaaatcaacag  
caacaagatcttgacataaagcaattacaatgacgatactgtatcagatgtaacagat  
attgttaataatcaaatgacttaaatgatgcaatggaaacattgaaacatttagttgac  
aatgaaattccaaatgcagagcaaaactgtcaattaccaaaacgctgacgataatgctaaa  
acaaacttcgatgatgccaacgctctagcaaatacattgctaaatagtataacacaaaat  
gtgaatgatataatggcgcaatccaagcagtcattgatgcaatccataatcttaattggt  
gatcaacgactacaagatgctaaagacaagggcaattcaatctattaatcaagcttttagct  
aaataagctaaaagaattcgaagcttcaaatgacgagatcaagacaagcttatgctgaaa  
aatcaagcagaagaattggcaaacagcatcatcaacaacattataaagcaacaagtaatt  
caggctgtatctcaagttcaaacagcaggcaaccacgcatgtaacaagtgcatgccaat  
gaaataccaaaagcaaaattgatgccaataaagcgttgataaagcaagttcaagcatta  
attgacgaatttgatcgaattccaatctaacagataagggaaaaacaagcacttaagat  
cgttattaatcaaatctcaacaaggtcataacggcatatacaatgcatgactaaagaa  
gaaattgaacaagccaagcacaacttgcgcaagcattacaagcatcaaaagatttagtg  
aaagctaaagaagatgctgaaacaagatgttgataaaacaagttcaagcttttaattgacga  
atcgatcaaaatccaatctaacagataagggaaaaacaagcacttaagatcgtattaat  
caaatacttcaacaaggtcatatcgacattamcaatgcatgacaaaagaagcaattgaa  
caagcaaaagaacgttttagcgcaagcattgcaagacatcaagatttagtgaaagctaaa  
gaagatgcaaaaatgatattgataaacgtgtacaagctttaaattgacgaattcgatcaa  
aatccaaatctaacagataagggaaaaacaagcacttaagatcgaattaatcaaatactt  
caacaaggtcataacgacattacaatgcgctgactaaagaagaattgagcaggcaaaa  
gcacaacttgcacaagcattgcaagacatcaaaagatttagtgaaagctaaagaagatgcg  
aaaaatgcaataaaagccttagcttaattgcgaagcgtgatcaaatcaattcaaatccagat  
ttaacacctgagcaaaaagcaaaagcgtcgaagaattgacgaagctgaaaaacgagca  
ctacaaaacgttggaattgctcaaaactatagatcaattaaatcgaggattaaacttaggt  
tagatgacattagaaaacacatgtatgggaggttgatgaacaacctgctgtaaatgaa  
atttttgaagcaacacgtgagcaaatcctagtttaattggtgaactcattgtacatcgtgat  
gacatcatcacagaacaagatttcttgacacataaaacttaattgatcagctttcagca  
gaagtcacgatacaccatcaactgcaacgatttctgatagcttaacagcaaaagttgaa  
gttacattgcttgatggatcaaaagtgtattgttaattgctcctgtaaaagttgtagaaaa  
gaattgtcagtagtcaacaacaggaattgaaatcaatcgaaaatgctgcaacaacaaaag  
attaatgaaatcaataatagtgtgacattaacactggaacaaaaagaagctgcaattgca  
gaagtttaataagcttaacaacaagcaattgatcatgttaacaatgcacctgatgttcat  
tcagttgaagaatttcaacaacaagaacagcgcatattgaacaatttaattccagaacaa  
tttagcttgacaagaacaaaatcaaatgcaattaaatcgattgaagatgcaattcaacat  
atgattgatgaaatcaaaagctcgtactgatctaacagataaagagaagcaagaagctatt  
gctaaagttaaatcaattaaaagaacaagcaattcaagcgattcaacgtgacgcaaaagcatc  
gatgaaataagtgagcaatttggaaacattttaaagctcaaatgaaagcagctaatccaaca  
gcaaaaagaactagctaaacgcaagcaagaagctatttagtagaattaaagacttttcaaat  
gaaaaataaattagatttcgaaatagtgaattggcagcagctgatgaaaaacaagcagca  
atgaatcaaatcaacgaattgtgcttgaacaatttagagatattaataatgctgacataca  
ttacagcaagttgaggctgcatgaaacattggtattgctcgaatttcagcagtaacaaat  
gtacacatctgatcgtgttaacaaatcgtcaagctactggaattgaattcaatagccattta  
acaattggttatggaactgcaaatcatccatttaacagttcgactattggacataaaaaag  
aaacttgatgaagatgatgacattgatccacttcattgctgacttttagtaataatttc  
ggttaattgtattaaaaacgctatttgggtggtggttatctctggtttactagctagtttc  
tggttcttctattgccaacgctcgtcgtaaagaagatgaagagggaattagaataaga  
gataataataaagattcaataaaagagacttttagacgatacaaaaacatttaccactttta  
tttgcgaaaacgtcgcagaaaagaagatgaagaagatgttactgttgaagaaaaagattcg  
ctaaataatggcgagtcactcgataaagttaaacatcgcgcgttcttcttaccaaaacgt  
cgtcgtaaagaagatgaagaagatgtggaagttacaaatgaaaacacagatgaaaaagtg  
tgaaagataaacgaacattcaccactcttattcgcaaaacgacgcaaaagataaagaggaa  
gatgttgaacaacaacttagtattgaattcaagatgaggacgttctcttatttggct  
aaaaagaaaaatcaaaaagataaccaatccaaagacaaaagtcagcatcaaaaaatct  
cttaaaaaggttagcagctaaaaagaagaaaaagaaagctaaagaaaaataaaaaataa

440. vnyrdkiqkfsirktyvtgtfstviatlvlfgntsqahaaetnqpasvvkqkqgsnneqt  
enresqvnsgnsqngqslsatheneqpnisqanlvdkvqassttndeqpasqnvntkk  
dsataattpdkqegskhkqmesqsankngndnraahvenheanvvtasdsdngnvqhdr  
nelqafidanydyrfidrenadsgtfnyvkqgfdkintllgsndpinnkdllqaykele  
qavalirtmpqrqtsrrsnriqtrsvesraaeprsvsdyqmanssyvvenandgsgypv  
gtyinasskgapynlpttpwntlkasdskeialmtakqtdgdygvvfkfngkghaphqnm  
fwfalpadqvpvgrtdfvtvnsdgtvqwsghagagankplqgmweygvndphrshdfki  
rnrsgqvdydwptvhiysledlsrasdyfseagatpatkafgrqnfeyingqkpaespgv  
pkvytfigqgdasytisfktqgptvnlklyaaaggraleynqlfmysglyvestqdhqgrl  
nglrqvvnrtyrigttrkrvevsqgnvgtkkvlestnlidddfvddplsyvktpsnkvlgf  
ysmnantnafrrpggaqqlneyqlsfltdqkqgeaartrnpirlmigfdypdaygnsetl  
vpvnlvtlpeiqlhnikffkmdtdqniaekpfskqaghpvfyvyagnqgnasvnlgsstvs  
iqplrlntlsenfddkdwqitgiprthienstnrrnnarernielvgnlpgdyfgti  
rfrgrkeqlfeirvkhptptitttaeqrlgtalqkvpmisgipldpsalvylvaptngtt  
nggseadqipsqytilatgtpdgvhntitirpdyvvpfpvpgkqiravvyynkvvasnm  
snavtilpddippitinnpvginakyrgdevnftmgvsdrhsikntittlplngwtsnl  
tkadfnanlmmflrwnfpqdytvtwnakianrptdgglswwdhslixyrydatigt  
qittndiltmlkatttvpplrnntgnksqaeaggrpnfrttgysqsnattdgqrqftl  
ngqvivqlidiinsngyggqpvtnsntnranhsnstvvnvnepaangagafidhvvksns  
thnasdavykaqlyltpygpqyvehlngntgnttdainiyfvpssdlvntisvgnynth  
qvfsgetfntitandnfgvgsvtvpntsqtgtvdmnhghvsatapnvtasatnktinll  
atdtsnattstfnvtvklrdrkyrvgtsttaanpvrianisnnavsqadqttiinslt  
ftetvprnsyarasaneltsktvsnvrtgnnanvvtvtyqdggtstvtvpvkhvpei  
vahshytvgqdfpagnssasdyfklngsdiadatitwvsgqapnkdntrigeditvt  
ahilidgettptiktatykvrtvphvftargvlypgvsdmydakqyvkpvnsnstn  
aqhmmfifvgtygnkdvvgistrlirvtydnrqteditlskvkdpdpriandsvtyka  
gltnqeilkvnnvlnssvklfkadntplnvtnithgsgfssvvtvsdialpnggikakasi  
smnnvtyttqdehgqvvtvtrnesvdsndsattvtpqlgattegavfikggdgdffghv  
erfiqnpghgatvawhdsdpdwtvntvgnthktavvtlpgnggtrnvevpvkvypvanaka  
psrdvkgqnlngtdamnyitfdpntntngitaawanrqppnnqagvqhlndvtypgi  
saakrvpvtvnyqgefepqtttyttvggtlasgtqasgyahmqnatgipldgftcykwrd  
ttgtdandwsamknkvakvvnakydvlynghtfatslpakfvvkdvpakptvtetaag  
aitiapganqvtvthagnvtyadklvikrnnvvtfttrnnstspvwkeasaatvagla  
gttnngitvaagtfnpadtiqvvatqgsgetvsdegrsddftvvpqpnqattkiwnghi  
ditpnnpshlntqamdiaytekvnggaehtsktinvvrgqnnqwtiankpdvyltdaq  
tgkvtfnantkpnssititpkagtghsvssnpslttapaahvtntteivkdygsnvtaa  
einnavqvanrktatikngtampntlaggstttipvtvtyndgsteevqesiftkdkre  
litaknhliddpvtteggkpgtitynnamhnaqqqintakteaqqvinneratpgqvda  
lktvraaqtkidgakallgnkednsglvtsknnlqssvngvpsatagmtqgsidnyakkr  
eaeteitaagrvidngdataqqisdekhvrdnalalngakhdltadthalqavqqlnr  
tgttgkqpasitaynnsiralqsdltaknsanaaiqkpiirtvqevgsaltvnrnrner  
ltqainqlvpladnsalktktkldeeksvtttgmgtqssiqayenakragqtestnaq  
nvinngdatdqqiaaektkveekynslkqaiagltpldaplqtaktqlqndidqptsttg  
mtasiasaafneklksaartkigeidrvlashpdatirgnvtaanaaksaldqamngltvd  
kaplenaknglqysidttqsttgmtdqsinaynakltaamkiqqinqvagsptveqin  
tntstangaksdlharqaltpdkaplqtaktqlegsinqpdttdtgmmtalsnaynqlk  
aarqklteingvlnqnpvtvqndkvteanqakdqlntarqgltdrqpalttlhgasnl  
nqaqgnftqginaaghaaletiksntalntamtklksvadnntiksdqnytdatpa  
nkqaydnavaaakgvgiettnptmdvntvngkaasvksktkdalddgqnlgrakteatnai  
thasdlngaqknaaltqgvnsaagvqavndikqttqslntamtglkrqvanhngvqsdny  
vnadntknkndynnaynhandiingnaghpvtpsdvnnalsnvtkshealngeaklnaak  
qeantalglnlnlnnaqrqnlqsgingahqidavntikqnatninsamgnlrqavadkdq  
vkrteyadadtakqnaynsavssaetiinqtntnptmsvddvnratsavtsnkalngye  
klaqsktdaaraialdaiphlnnaqkadvkskinaasniagvntvkgqgtdlntamgnlqga  
indeqgtllnsqnyqdatpskktaytnavqaakdilnksnggnktkdqvtteamnqvnsakn  
nldgtrllldqakqtakqqlnnmthlttaqktnltnqinsgttvagvgtvqsnantldgam  
ntlrqsiankdatkasedyvdannkdktaynnavaaaetiinansnpemnstittqkaeq  
vnssktalngdenlaaakqnaktylntltstldagknnlisqitsatrvgvdtvknqaq  
hldqamaslqnginnesqvkssekyrdadtnkqgeydnaiaakailnksstgpnatqnav  
eaaigrvnnakdalngdakliaaqaakqhlgtlthitaaqrndltngisqatnlagves  
vqmansldgamgnlgtaindksgtlasqnladadeqkrnayngavsaatelnkqgtgn  
taktavegalnvvnnakhalngtgnlnnakqaaitaingasdlngkqkdalkagangagr  
vsnaqdvqhnateintamgtlkhaiaadkntlasskyvnadstkqayttkvtnaeiis  
gtpvtvtpsevtaaanqvnsakqelngderlreakqnantaidaltqlntpqkaklkeq  
vgganrledvqvtvgtnggalnnamkgrdsianettvktsgnytdaspnngstynsavsn  
akgrtignpntmdtsaitqattgvnnaknglgaenlrnaqntakqnlntlshlttnqk  
saissqidraghvsevtatknaatelntqmglnleqahdqntvkgsvkftdadkkrday  
tnavrsaeailnktgantskqdvaaigmvssaknalngdgnvtnakmaaknalnlt  
innaqkrdlittdiqgattvagveavststqlntamanlqngindkntlasenyhdads  
dkktaytqvavnaenilnksngsldktavenalsqvanakgalngnhnleqaksnantt  
inglqhlittagkdklkqvvqgaqnvagvdtvksantlmgamtlnrsiqdntatknqgn  
yldaterknktnynnavdsangvinatsnppmdanaingiatqvtstkmaldgthnltaq  
qtatnaidgatnlkaqkdalkaqvtsagrvanvtsiqgtanelntamglqhgiddena  
tkqtqkyrdaeqskktaydqvaaakailnktqgsnsdkaavdralgqvtsktkdalngda  
klaakaakqnlgtlnhltnaqrtdleggnqgattvdgvntvktantldgamslqgs  
indkdatlrmqnyldadeskrnaytqvataegilnktqsgntskadvdnalnavtraka  
alngadnlrnaktsantidgplntqlqkdnlkqhveqagvavngvdkdgnntintam  
galrtisqndnttksqnyldasdnknyntavnnangvinatnnpmdanaingmanq  
vntkkaalngaglnaaktatntinnahdlnqkqkdalktgvnnagrsvdammvqhtat  
elnsmaltkaaiadkertkasgnyvnadqkrqaydskvtnaenlisgtpnatltvndv  
vnsaasqvnaaktalngdnrlrvakehanntidglaqlnnaqkaklkeqvgsattldgvqt  
vksstqntamkgrdsianeatikaggnnytdaspnmmeydsavtaakainqtsnpt  
nepntitqvtsqvttkeqalngamlaqaktaknnlnltinnakqkdaltrsidgatt  
vagvngdetakatelnnamhslqngindetqtkqtkyldaepskksaydqvnaakailt  
kasqnvqdkaaevqalqvnstktalngdaklneakaakqtlgtlthinnaqraltadne  
itqatnvegvntvkakagqldgamqletsirdkdtllqsgnyqdaddakrtaysqavna  
aatilnktaggntpkadveramqavtqantalngimldrakqaantaitnasdlntkqk  
ealkaqvtsagrsvaangvehtateintamtalkraiadkaetkasgnyvnadankrqay



441.	<p>atgttctttgatgatgctaaagaagcatcaagagtacttgaaataacattgacgaaaaga  gatgctaaaaaagaaaatcctattccgatgtgtggcggtaccatattcttctgctgataat  tacattgaaacattgatttaataaggggtataaggtcgctatatgtgaacaaatggaagat  ccaaagcaaaacaaaggaatgggttagaagagaaagtgtgaagaatcatcacaccaggaact  gttatggatcaaaatgggtatggatgaaaagaaaaataattatattttaagttttatcgaa  aatgaagaatttggattatgctattgtgagtttctacaggagaactcaaaagtaactcat  ttcaaaagatacagcaaccttgcttaatgagattacaacaataatcccaatgaaatcgct  ataaagcaagctctatctgaagaattaaaaagacaaatcaacatgataactgagacgatt  actgttcgcgaagatatattctgatgaagattatgatgaatcagttgacacatcagttta  atgcatgacacaaactcaattattgttagattacattcatcacacacaaaagcgagattta  tctcatattgaggaagtaattgaatatgtgcagttgattatatgaagatggattattat  gcgaagcgaaatttagagctgacagagagcatacgattaaaatcaaaaaagggactttg  ttatgggttaattggatgagacaaaaacaccgatgggtgctagacgttttaagcagttgatt  gatcgctccatttaataaaacaaacaaatcaacgacagattaaaattgttgaagagttt  atggacgcttttattgaaagagatacattacgtaatacatttaaatcaagtgatgacata  gaacgactagtaggaagagtgagttatggaacgtaaatgcaagagatttaatacaactt  aagcatctctatccgaaatacctcacattaaagcattactcaatgaattgggtgcacaa  actaccacgcaatttaagaatttagaacctttagatgacttggtacaaattttagaagaa  agtttagttgaagaaccacctatttccatcaagatggaggattatttaaaatggcttc  aacgcgcaacttgatgaatatttagaagcttcaaaaaatggtaaaacttggttcagaaa  ttacaagctaaaggaacgtgaacgtacaggtatttaagtcattgaaaattagtttataaaa  gtgtttgggtattttattgaaattacacgtgcaaaacttaataaatttcaacctgaagcg  tttggctataatcgaaaacaaacattatctaattgtgaacgatttattacggatgaatta  aaagaaaaagaagataataacttggtgctgaagataaagcagtagagttagaatatgaa  ttatttgttaaatcagagaacacattaaaacgtacactgaacgtttacaaaagcaagcg  aaaatcatttcagaacttgattgtttacaagttttgtgaaatttgctcaaaaatataat  tatgtcaaaactacatttagtgatgataaagttttacatttagaaaaactcaagacatcct  gttgttgagagagtgatggattataatgattatgtacctaatgattgccatcttgatgat  gaacgctttatttattctcattacgggacctaataatgtcaggtaagtaacatatatgaga  caagttgctataataagtatcatggctcaaatgggagcatatgtaccatgtgattcagca  acattacctatatattgatcaaattttactaggatttggtgcagcagatgatcttgatca  ggtaaaagctacatttatggtagaaatgtagaagctcaaaaagctttaaacttatgctact  gaaaatagtttaattatctttgacgaaataggaagaggtacatccacttatgatggctct  gcgttagcgcaagcgatgattgaatatgttgctcaaaacttcccatgctaagacacttttc  tcaacacattatcatgaattgacatcacttgatcaaatgcttaagtggttaaaaaatgta  catgttgctgcaaacgagatcaaggtgaactgatattttgcataaagtcaaaagatggc  gctgtggatgatagctatgggtattcaagtgggcaaattagcggatttacctaataagatc  attgatagagcgcaagttatattaaatgcatttgagcaaaaaccttcgtatcaactctct  catgagaatactgacaatcaacaaacggttccgctgtataaacgatttttggtcgaaacaga  gaagagcaatcagttatagaacacatacatcaaatcataattatgagcaagcgaccttt  gatttatattgttggttacaatcaacaaagtgaagttgaatgtcaaatccgagaattgaat  ctatccaatatgacaccattggaagccttaatacagctgaatgaattacaagtaaatga  aag</p>
442.	<p>mffddakeasrvleittlkrdakkenpipmcgvpyhsadnyietlinkgykvaiceqmed  pkqtkgmvrrevvriitpgtvmqngmdekknnyilsfieneefglcydcvstgelkvth  fkdtatllneittinpnelvikqalseelkrqinmitetivredisdedydmqlthql  mhdttqllldyihhtqkrdlshieevieyaavdykmndyyakrneltesirllkskkgtl  lwlmdetktpmgarrrlkqwidrplinkqgindrlniveefmdrfierdtlrnhlnqvydi  erlvgrvsygnvnardliqikhsiseiphiakallnelgaqtttgfkfkelepdlldlgilee  slveppisikdggllfkngfnaqldeyleaskngktwlaelqakerertgikslkifnk  vfgyfieitranlnnfqpeafgymrkqtlisnaerfitdelkekedilgaedkaveleye  lfvklrehiktyterlqkakiiseldclqsfaiagkyknyvktfsddkvhlensrhp  vvervmdyndyvpndchiddetfiylitgpnmsgkstymrqvalisimaqmgayvpdsat  tlpifdgifttrigaaddlvsgkstfmvemleaqkaltatensliifdeigrgrtstydg  alagamieyvaqtshtklfsthyheltsldqmlkclknvhvaaneyqgeliflhkvkdg  ayddsygiqvakladlpnevidraqvilnafeqkpsyqlshentdnqqtvpssyndfgrte  eeqsviethtsnhnyeqatfdlfdgynqqsevecqirelnlsnmtplealiklnelqslk</p>



443.	<p>atgattccaactaaacctcatgatgtgatttggacagatgcacaatggcaaagtatttat  gcgaaggacagacatacttctgtctgctgcagcagggttcggtaaaacagccgttcta  gttgagcgtattatacaacgtataactaagagatgatgtagatgtagatcggttactagtt  gtaacatttaccgaatttaagcgcacgtgagatgaagcatcgaggttgataaacgtatacaa  gaagcatcttttaaggatccttaacaatgaacatttaagaatcagcgaatcaaaattcat  caagcacagatttctactttacacagtttctgttgaatgtatcagcagcattatgat  gtattagatcgcagctcattttagaacaagtagtgaagcggaaaataataattattatta  gaacaactatttgatgatgttttagaacaacactatgataaattagatcctcactttata  gaattaaccgaacaactatcatcagataggaatgatgataaattagaagtattttaag  cagttatatttttccagttattgctaactcctcaaccatttgaatggctcaatcaattagcg  caaccatacaagaagaaaataaacagcaacaattaatgcagcttatcaatgatttagca  atgtattttatgaagcaggtatgaggaattacaaaaaagttatgacttatctcaatg  atggaagtgttgataagcagcttgaggttattgaaacccgaacgcatgtttattactaaa  gctatttgaaggtaaaagtattaaatacagatgttatcacgcaacatgaatttatgagtcgt  tttccggcaataatagcaagataaaagaagcaaatgaaggcatggaagatgctttaaat  gaagcaaaaacacattatgataaataaatacttttagttatgaaagtaagaagattat  tttctagaaaatgcagaagatttgcaagagatagcaacaactcgcaacctcgagtggtct  tatttagctcaaatagttcaagatgtgattcaatcatttgggtgttcaaaaacgaagtcgt  aatatttgggtattttcagattatgaacattttgcattacgcattcttactaacgaagat  ggctcaccttcgcgtatcgtgaaacgtatcgtgaacattttaagaaaatcctagttgat  gagttacaagatactaatagagtgcaagaaaaaatttatctgtattaaaactgggtgaa  gaacacagatggttaacttctcatggttggggatgtgaagcagcttattataaatttaga  caagctgatcctagtttattttatgaaaaataatcgcgttttctagtagtggaagtga  agtggttcgcgcatgacttatcgcaaaccttctgctcgagacaggaaggttatctaca  accaattacttgttcaaacatgatgatggaagaagtaggagaaaatttcatatgatgat  gcagcgaatttatttttgggtgcaccatagcagaagtttcacatcctgttcaattacga  gcacttcttgaggcaagttcagaaaatagtgacttaactggaagtgaacaagaagcgaat  tatcattgttgaacaagttaaagatatttataatcatcaaacgtatacagatagaaaaaca  gcatcaatcagaaaaagcaacataaaagatagtaatttttagagcgaagttttgggtcaa  ggcgttaattcttcaacaagcttttaaaaataatgatattccttttccagtaaatagtaag  gaagggtattttgagcaaacgtgaagtagcttctgtgcttttcaattttaagaacaatagat  aatcctgttcaagacatttatttagtgggattgatgctgttctgtaatatatcaatttact  gaagaagaatttagctgaaataagagtttgaagccctcatgatgatttcttcaaatct  ataaaaaattatagattgatgaaaaagctgatttctagatttgggtgacaagttaaatcgt  tttattcaggatatacaaaaaatatacaaaattatagtcgaagtcacccggtttaccaatta  attgataaattttataatgatcattttgttaattcagtagcttttagcgttcttattggaggt  aaaggttagaagagcaaatctgttatgggctatttaataaagctgttgaaattgaaaattca  agtttcagaggtttattccaattttatctgtttattgatgagcttattgatcgtaaaaaa  gattttgggtgaagaaaatgtcgtaggtcctaacgataatgttggttagaataatgacgatt  cacagtagtaaaagattagaatttccatttgaatttactcaggattatctaaaaaattc  aacaagggtgacctgaatgcaccagttatttcaaatcaacaataggttttaggtatggat  tattttgatgtaaaataaagatattggcttttcccttccattgctctgtggcatatagagca  ataaatgaaaaagaacttatatacagaagagatgcgttttaattctatgttgcgttgacacga  gcataaagagcaacttatttttagtgaagagtcagaagatgaaaagtcgttaattaaat  gaacaatttagctgtttcagacacacatatagcagtttaataagcgccttactgctaccaat  catttcttctaatttatgggtgttttggctaaagcatcaatcgcttctatgccaatgat  caaagatttgaagagatattgatcaattaaattctgaagtgaaagccagctgtatcaata  gtgatgtatcattatgaggtgttttcaactgaagaagtagtcaatgataatgaataaga  acaatcgaagaattaaaggccataaataacttggttaagagatgtgaaaattaaaattcat  caacagcttcttctatgactatccttttaagtttaacacgatgaaacattataacagtcg  gtatcagagtttaaaacgtcaattagaactgaagaaagtaatacaaatatgatagagta  cgtcaatatcgtatttgggtgttgcacatataaagacccaagtttcttaccacaaacaaa  aaaagaaaagcaaatgaataagggactttaatgcatacagtcagtcacacattacctttt  agagaacaacgttttaacaaaagacgaattatttcaatatatcgatcgattgattgacaaa  caacttattgatgaagatgcaaaaagagattatagaatagatgagattatgcatttccatt  gatggccctctctatattggaatagctcaagctgacaattgtttatactgaattacctttt  gtggttaaatcaaataaagttgatggacttacaagtgaagatgaagatgtatccattatt  caagttgatgtatttataatataatgaagtgacggacaattttactttgttgattacaaa  acagatgcttttaatagaagaaaaggtatgagtgatgaagaaatagggaatcagctcaaa  gaaaaatcagatataaatgacgtattatcgaaatactttagaaccatactttaaaccga  cccgttaagggttacttatatttttcaaatttgggtacattagaataatagatgat</p>
444.	<p>mipthkphdviwtdaqwgsiyakgqdlilvaagaagsgktavlveriqrilrddvdvdrllv  vfttnlsaremkhrvdriqasfkdpnnhehlknqrikhgaqistlhfsciklikqhyd  vldidphfirtsseaeenillleqtiddvleqhydkldphfieltteqlssdrnddqrslk  qlyffsiampqpfewlnqlagpykeenkgqqlmqlindlami fmkagyeeelqksydl fsm  mesvdqglevietermfikaiegkvlntdvtqhefmsrfpainskikeanegmedaln  eakghydkyslvnmkvkndyfsrnaedlgrdmqqlaprvaylagivqdvigsfgvgkrsr  nildfsdyehfalriltnedgspriaetyrehfkeilvdeyqdnrvqekilsciktge  ehdgnlfmvgdvkgsiykfrqadpslfielkynrfsfssgnesglridlsqnrfrsrqevlst  tnylfkhhmdqevgeisyddaaglyfgapydevshvpqlralveassensdltgsegean  yiveqvkdilnhqnvymktggyrkatykdilvilersfggarnlqga fkmndipfhvnsk  egyfeqtevrllvlsflrtidnplqdiylvglmrsviyqfteeeelaervvspdhdyfys  iknymidekadsrlvdklrnfidqigkyqnsqsgpvyqlidkfyndhfviqyfsqglgg  kgrranlyglfnkavfenssfrglfqfirdelidrkddfgeenvvgpndnvmmmti  hsskglefpviyqslskkfnkgdlnapvilnqyqylgm dyfvdnkdmafpslasvayra  inekeliseemrliyyaltrakeqlilvgrvkdelslikyeqlavsdthiavnerltatn  pfvllygvlakhgspslpndqrferdidqlnsevkprsvividnyedvsteevvndneir  tieelkaintgmedvkihihqqlsydypfkvntmkpskqsvselkrqleetesntnydrv  rqyrigvaasyerpklftgkkrkaneigtlmhtvmghlpfregrltkdelqfyidrlidk  qlidedakedirideimhfidgplymeiaqadnvytelpfvnnqikvdltsededsvisi  qgmidiiliesdgqfyfvdyltadfnrrkgmsdeegnqlkekyqimtyyrntletilkr  pvkglylffkfgtleidd</p>
445.	<p>ctgtaccataaatgggtgctacaatttctcctgaactcgtgtacaaatccgataccatcac  ccatcatcttttccagagaaaactttatcaggtacttcagataacgggtattatctcaccat  gtccaggtgcgtaaatcttctgtttctacaatatcttccacatgtacaggatcatctgaca  cttcttcatcaattgtgttttccacttgggtttg</p>
446.	<p>lyhqmvlfllnlvqiryhpsfqrklyqvlgitvllshhvqvrkflfqlqlyphvqdhlt  ilhqlfhlvi</p>

447.	cgcatacttttggtcatcactatgcgtaatccacaaaatggcaatccctttatctgctagt ttaaataaattttctcaattttctttttattatgtgtatctaaagcgctagtagcttcg tccaataataaaaacttcagggttcatacatgagttgtctagcgatggtaatacgttgttc tctccccagacatgtgctcaatt
448.	rilwsslcvihkmaiplsaslniissifflcvskalvassnnktsgsymsciamvircc sppdmcsi
449.	tcacgtacttttacgcgctctactcttaataactccaacaggcatgatgtgtggtttgta tgggtcatcatctgaaatcataataaaaattcttttcacctttgtttgtcaatccgtatact tcgtcatattttgcgacatctttaataaaactctctcattcttatcatctaaattcagac atcaactcatcagtcattttaactatactacaatgtttccttcttccaccattattcaca ttaactaaaactttgtcacctggatcaaagatttccatccatttcatatgtttacaaaacgg tcaatatctgctcctaattgattttgtcg
450.	srtlralllilqtmcgllwssseilkkffsflfvpnytsyfatlsinlilissnsd inssviltistmfpssplftlktlspgskissisyvtrksisalmils
451.	gcaggatttttgactaaagcagtcacttaaatcaacttcattctctgcatcaaacacttct tctacgacttctttacgtgcaatcactctaaatgaaccttcgtccattttaattctact cttacattttctggcactatca
452.	agfltkavlkstsslsntstslraitlnepsisfnstltflals
453.	tattttttataagctttttaattagactaataatcatgctcattgattaccgaaacaatt tcgatttgcctatttttagatataattgagccattaccaccaatcaagggtatcatccgca aattcaggaatgactggaagcaagtccttaattgggacgtgctgatgcaaacattacattg
454.	yffisflirliscliteticisicpfdliieplpikvssansgmtgkslmgradanilt
455.	ttatcttcttctaaagctttaccttcaacgtcaacgtttggcaatactgcacctaacat ttaggaaggtaccatgaagctttaccaagaggtttcgtaaatgctggaattaaatgtcata cgtacagcgaatgcgtcgaaataacacacccgaacctaagtcgataccattgacttaatt gcactgtcatcttggagacgaatgcgatgaatacactgaacataaataagtcagcagct acgataaacagggtccactttcttgatcctacacgagtgtaa
456.	lssskalpststfgntapnhlgryhealpkfsvnaginivrttnasnntpkpnaiplidli alsswktnamntlniisaaatitgplisliptrie
457.	tcataactgcttgcattaaagtctaaagatttttgcgtattcagcatcgctcttcta gcttttaatgcagaaccagcagattacaggtacatcgtcacctgggaagtcatttcgctt aataagtcacgaacttccatttcaactaattcttaataattcttcgtcgttaccatgtca actttgtttaagaatacaactaatgctggtacaccaagcttactgtataaataagatgtgt tcacgagtttgtggcattggaccgtcagcagcagatacaactaagataccgccgtccatt tga
458.	sstacikskifcsysaspsnafnaepaitgtsspgksyslnkrtststnsnnsssstms tlfkntnagtptrldnkmsrvcgipgsaadttkippsi
459.	ttagaaccacctacacgacgagctttaacttctaatactggcatgatattattaattgct tcttcgaacacttctaattgcatcacgaccactacgttgttcaacaagatcaaatgcagaa
460.	lepptrraltsntgmilliasntsnasrplrcstrsnae
461.	aggaggcgacccgcccagtcacactgcccgctgacactgtctcccaccacgataagtg tgccgggttagaaagccaacacagc
462.	rrrppqsnoppdtvshhdkwcglesqhs
463.	tgtgctattattccccctattgaaggacctaaccttccactaaagctacaattgatcct ataaaaccaaagcctttgccttgttttttcttgtaataattcttagctacaaccaccata atcagtgaaggggaatgcagcagatcctactccttgtaactaaccaaaaatcaaaaata aaaaag
464.	gccagtcacttctcgttccatttgattcaatacaaaaattatcttgaacatcttccga agcactgtcgccagtatcttgccttttcttttgcgttgtgtttatgatttttttcgcacg gtcaaatttttcttaactttctcattattaatgatttttgccttttacatggcattcaac cggaagaggcatattttgagcttttctcaaa
465.	tgctgtattaatactgccttcaccagatttgcctagcatttggatcttgagtttgcggt tgctgctacaggtgctgctggttgcgctgctgctggagcattcgctggctgtgtttgatt tgccgggtgttcattatttaggtgttgccttgggttatcttgcctgactgcttgggttgc cggtgttgccttgatttccaggttgccttgcctgctgagcgttatccggatcagcttgattacc ttgtccagctggttgccttatttgccttgcctcctcctgctggattagcctgtccacc ttggtttgcctggttgcctgctggttgccttgccttgcctgaggtgcagctggtgtgctgt aggattagcttgagcaccagcatttgccttaggctgtgtattggcatcagctggttgc tgggttgatttttgcaggtgattttgcctgctgcagacgctgtgtgcgggttagtaga tataaaagtaacagtggaat
466.	atccacgctttcaggaataaattgttttcaaacactttgaaatggatcgcggtgttgc ttgatatactttgtagcgataacgtttacctacacaatcataacgacaatgaaaatcgtc atcgactgtaactacattgttgacataaatatcactcagg
467.	cggtataaaggttaaagcaaaatgcatcagcttgccttagaatgattgtccttttttgata atagcgttccattgcaatgacggcagaaggatggtttgcaacaaaatgatttgcattatc actttc
468.	atgcaagagtacaaaaatcggttaaatagccttaaaaagcctataaatgttccgtatgag caagaaactgaaaaagtaggtggtttatttagcaagaaatacaagaaactggaaatgtt gtaataagccaaaaagatttcaatgaatttcagaacagataaaagcgtgctcaagatatt tcggaagattacgagtatataaagcttggttagagccttagatgataaagataaggaata cgagagaaagatgatttataaataaagcagttgagcgtattgaaaacgcagacgataat tttaaccaactttacgaaaatgcaagccacttaagagaataatagaaatagcgttaaaag cttttaaaaacttactaaaagagttagaacaggttttaggaagaaatacctttgcggaa agagtttaataagttacagaagatgaacaaaactaaatggttttagcaggaacttagat aaaaaaatgaatccagaattatattcagaacaggaacgacaagaacaacaaaagaat caaaaacgagatagaggtatgcactta
469.	atgctaactacttttcgctgttgcctcattttcttcttacttccattctcatttttattg
470.	ttgagcatctgcacattattatcattcatgcgatcatttttgcattacattatataaaat ggcattcaaaaatacaaat
471.	ttgcctataccaagtactagaagtcaccaataatccagcaatcaatgcaacgatgact gttttaaacatcgaaaatttaggtcttctgtatcaggtgtttgggtatggtttgtgta gaa
472.	atgcttttgagttacttcataaactcatcagttttttgtgtatccttttgactttttatt tattctttccacttaccagtatgactttctttttttacagttatttttcggtttgtt

473.	atgacttgtgaaaaactggaataattcttgaccagtagcaaagccggcaccaacgacaac accaacaaaggcaaatgccacaataatggactcttt
474.	ttgattgtcatttagtaacgttattgccattattttgatttttatctgttttctgcact atcatcttgttgatcattttcttcggtttctgtcttttatgcgtagatttattttcttg tcttgggtattact
475.	atgtgcagaaattgccagcattcaccagttgtttcattagggatatcatagttaaatgc ttt
476.	gtgggtatacaacgcaacgtatatgcattctgtacacgtattttctgattgtcgcgctgcta atgttgatccttcttaaccaatcacgcatacgcgctgccacat
477.	gtgacaaatatacactaaacagtgcatcttgagatgctacgataagcgattttttatac caagtcaggtat
478.	ttgtgcagtagtagcttgggttactattcttaagcttttgttctgcattctcaactgttt aagtttttgatacgcattctgtttacgttgattgtacgtttatattgattttcagcttt tttaagttctgtattcga
479.	ttgccttctgtttatattgttcaacaagtgtttatgcttagcggactgcttctgtact gcgtcactgtctcttttagttgtgcagtagtagcttgggttactattcttaagctttgt tctgcatctctcaactgtttaagtttt
480.	calippiiegpnpspkatidpikpkalpcfflviflattiisegnaadptpctnlpkiki kk
481.	ashfsfhliqykqiilnifrstvasillfcllfmlyfrtvkfflnfliindfcfymafn rkrhilsflk
482.	crintaftsiasiwslsvccyrccwlrccwsirwlcllcrcclliirccclvisltclvc rccllsrllcslvirislitlsswlciwlcscswisltlvcwlycwlslvgrcswlcc rislstsicvrlcigiswlcwllclrlillccrrccrvsryksnsgn
483.	iqfrnkfcqgttlkwiavlclyfvaitftytiitttmkividcnviyvdiniir
484.	rykgkakcisllrmivlfliafhcndgrmmvckgmici ftf
485.	mgeyqkslntlkpinvpvyeqetekvgglfskeiqetgnvvisqkdfnefqkqikaqdi sedeyiksgralddkdeirekddl inkaverienadnfnqlyenakplkenieialk llkilkelerlervlgrntfaervmkl tedepknglagnldkkmpelyseqqeqqeqkn qkrdrghml
486.	mlttfavvllifflpssfl
487.	lsiciiiiihaiifvhiikngigmnn
488.	lpipstrsapiipainatmtvl nhgnlgllylgvwlwfvve
489.	mllyfiiiliflciilltfiiffpltsmtfffystrfv
490.	mtceklenfltskagtnndntnkgkchnnglf
491.	livisnvialilifcfvctiillii ffgfclfmrrfiflflvit
492.	mcrncpaftscfirdiivkcf
493.	vvynatymhlvvhflivaslmllltnhayalph
494.	vtnitlnsafadatisvflyqvry
495.	lcssslvtlklfclisqlfkflirilftlietfilisffkfcir
496.	lpsclycstsalcladcfctaslalfscavvawllflsfcsaslncslf
497.	caagtgtgaaaaatgcttcagaacatctcttctgtgatgctattgttacttatgctaaag ataaaggctttaaatttacttgataatgacacttttaatacaattccgggacatggtatta aagctacgattcatcaacaacaaatccttgtgggcaatcgaaaat
498.	aagaggcttgtttatgcagcaacacgtgcaattcaacttgccaaagattatcttgcacac gccctaacgaaaaggcttctgtcattgtcagtagtacacagctcggtattggtattcattctg gtgggtgagcctactcaagggtgccggtgcagttgcaa
499.	ctgcgcctacgccagtttcagctattatgcacgctggtattgttaatgctggtggcgta ttcttacacgcttttctccggtatttaataagacgaaa
500.	cgtttacgatatacttcatacatcattaaacttgagccacagacgcgttcaagctattg acatgtccaaccattggaatcttaata
501.	tcaagcggttttcttatacagacttactatcactttttctcgattttcaaatgttggatgc aaaaaacatatacaggaggccataataatgaagaagaaataatagaatggattgtagcc ataatcggttgaattgttatcgacacttggtcaaaagttttatttgcctcttatataca gtcaaggagcatcattatgtcatttatcac
502.	agatctgtaccacatatgttctgtcttaactatgcgaataatagcgtagtactgctcgta atagttggcttctctttatccgtaagttgtgca
503.	actgccaataatatcatcagcttcataattacgcttaccacatttacaaaaccaaactg atgggataatttctttaacataatcgaattgaggaataagttcatcaggagggtgctgggag atthtgtttatagccatcatacatttcttctgaatgtttcttggcccatatcccaaca aactgctacgtgagtaggttcgatttcttctgtagcgctaaaaaatatgctttacaaaacc ttgaataaccattttaggaattccttttagaattgtacataaattgattgtg
504.	ttctttttagattgactcaactcaactggctcaaaacttgcggttagaattgctttac atgtattttatgattttcagttataatgaatcatattgtaagtaccatttgt
505.	atthttatatctacatcggggtgtagtacaacatcagcttggaaggctgaggttttgcca ttaaggggttcgattcccatcaccgctccattt
506.	ctaaagaatatattgaggattgtatttattgctggttgacagttttcttctctggtcct ggccaaacttattcaacgcagcattttattgatgaatatattcaaacatttgatggagc cgtacagaagtt
507.	aggaattccaatcaaatgtaccaaactttacagcggtattgtacttatatttatgatt attgtacttgaggacttgtagttcaagttccaatttttagcaggtattatggtt atggtttctgagacaatctactgtttgcacctgat
508.	aatacaacgactcgaggaaacaaatttctctccccatcacagctcagcctta

509.	<p>atgaaacaatttttaaacatcactcaacgtaaatttatcgaaatgggtgattatcttatcc  atttttatagttagcatttccataaattggacattaatgatctatcgctttatcttta  ttacttcttaaaagagggcgctaggtgtcggtcaattaatcactttatatgctcaga  tcgcaaatatcacccccatgatatacagaagagatggcgattacatagtaagatgaaa  tatattcttgatttatgtaatggagttatcttctatttaaatatgtaaaacattggata  agaaatgaaatgatattaagatttatcaagttactatgattcttatgctactttatatc  ataatgagtttagtcgtatcctaatgatccgatagaatctattcttaaatgcttaacttc  ttataccgctaattttgattgttatgtatgttagtttaaaaaagataaagaatctc  attaactggattaatcaatttatcagcgtagtgattgcctttacttttttatttatagtt  atagcgccaaaatcataatttaattgatgaggaatcacttagaagtggtttcaaggatgca  cattcatcgcagttattcttctgtatgggtctagttctatatatggtaacaataatcaaaa  caacaagattatgatgtattcaatttattatttaaatatggaaatgatagagctctat  ttatcaaattctcgtcatattttcatatctgttattttatgtctaatgcttctattaccg  ttatctcacataaaaaagagaattaaacatcccataattgggtgctatgataactaatggca  attgctataataaatcaaccatataatttatcatctttttataaactaatcttaaaaggg  aagaatagccaagaggtctttatgcccagtgatgaatattaaagctattgattatgcg  ctaacgagcatcttttttaggaagcgggtttgggtataccaatgataaaagcaggttca  gaaatacaatacttttaattgtagcaacgagtaataatcatcttcggtatgattatctttact  ggaaataataggacttactttatgtacgataacatgcttcatatggtaacttttagttact  tttccaatgagttactattttatttttaatacactatctttgtaaatatggattat  attattttatttgattccggtggggctaggtatattgtgtatatattttggggaatatat  ttaaaagaaggtatgtatcaatacaacaacggacaatgg</p>
510.	<p>atgacaaatcaaaaaactgtgggtctagtcgtcgctccaggtgttactgaacgccttgca  gaaaatctcatacagaagaatgcctaaaatgttatctacacattatgatcatcagcaagaa  tggattttttgatttagttacggatccgcttactgggttttctgaatctgtagatgaaatt  tttgggaaagtagccgatattcacgataagagacaatgggattatgtgatagcaattaca  gatttaccgatgtttgcggaacagcaagtgatggcattagatataaatggaaaatgggt  gcagctatattctcatatccggcattttggctggcgtccagttaaaaaacgtttcaagcat  gcgatttataatatttcaagaattaaatgaagctgaacaagaagtcgtaattatgat  aataataagcaaatagaaaaattcagtaaaaaaacaatttcgcgtctctaaaaatagataaa  gaaacaaatatatagaagaacagactcttatcacttaagatatattatcaagttccactg  ctaacgcatgttttcgccttggtagtggaatgaccttttgcgaataatccattaaatatg  atggcaagtttaagtaatatagtagctatttgcatttactacaggtgcatttggacttcta  tttacaacgatgtggcaaatggcttataacttttcaatgtggcgcttatttggaaatttca  attattgcatatttggaaatgctaataatggataatgatgtcacatgatttatgggagcca  gttaataaaaagcaaccataagcatatttcttgggtatatacaatcttacaacaataatgaca  ttgatttttggcaattataatttattatatttctttatttactattcttaattgctgaa  atcgattatttggcattcaggatttcttaggtcagcaagttggattgaaaggtcctgcaggc  attgatttggatttaagttattccatgggtttgcagcttcaatttctacagttgcaggtgca  ataggtgctgggtttacttaattgatgaactcattaaagaagcacatatggatatcgtcag  cgtgtaagatcacgaagaacaacgtcga</p>
511.	<p>atgaaattctgcctcatgttggaatccgataaaaaaggaacagtcattttgttaataaa  tgtggaanaacatttaagacatcgacacaaagaaaagtgaaaatcaaattgaacatatg  cgtgaacagcaatcgatatatttctcgtgaggaagacaacatcatgattcaacattttat  aaagaacaaaaacatactgggtggctaatgtattatcaattatatttgccttgggtgata  gcagcgctattgtatggtgcttactatgcttacaatcatttatatttagtgatgagcaaat  caccacaaacacagaggtctcagcaatcaaatgaaagtgatcaaaaatagggaccaatccact  ggtccaagcattgatgttttttagtgatgactttgatcaaggttatatgaagtcagcttca  acaagttggatatagaggtgtttataatggaaatgacacgtgaagaagttgaagataaatt  ggaacatccaatgggtctctgtagaagtttgaagtgaggttacgaaacatatgggtgattta  gctgtagcctacgatgataatgaagttgttagcgtagggttagcacctaatcatatttca  gaagatcaatttttaagttatgtataatgaaccggatgatagaattcaagccaactcatt  tatgatagtaacaaagataatgacttctctgtgttagctaatgttaaaaaatggagatgtt  actgtcattgaaaatgtaaatcaaat</p>
512.	<p>atgttattgtttatcatagaaatcataatcatgattctagcgatattattaggattaaga  actgctgggtcactgggatgtggcatctttgctatagtagcgagcttatcatgatattt  ggattccagttacctccaggttcagcaccagtgacggcaggtttaatcatattatctatt  ggtagtagcaggttggtacgtttacaagccactggtggtattgactatttagtatacattgca  tcacgtgtgattgaacgctttccaaaatcaattatattatagcgccaatgattgtcttt  gtctttgtttttggaattggtactgcaaatatagctctttcacttgaacctatcatagcg  aaaactgcacaaaagcacgaattcagcctaaacgcgcattaactgcttcgggtacttaca  gccaatttagccttacttttagcccgccagcttctgctacagcttatattatttctgta  ttagcaggttatgaaatatacgatgggcaagtttaagatttggtttaacctacagcttta  attagttatgttaattgcttagtacattttgtacattttaggacgaaaagaacacgtgctg  gatgagtcagaacgttttagttcagatgccagaagtcgaaatcaaaaatgacttttcatta  aaagttaaaaataggtgttatctcattctattatgtgtcatgggtatttttaacgtttggc  atatttccaatctcatgcccgaattcaatgtgaatggagatgtagttaaagttgagatg  actgaaattgttcagttctttatgtatctcagcgctacaataatattattatataaaaa  atcaatacttctgatattctgtcatcgaatattacacaatctgcaatgggagcacttttt  gcagttcttggccaggttgggttaggtgcaacaataatttaattgctccacataacttaaaa  atattgaaaaatgatattgggtcaattatttagtgaagtaccttggcttggttatcatactt  gtttctgtagttgcaatgattgtcattttctcaaacagctacagcatcaattatgggtgcg  atagttatgagtttaggtatacctcccattctattttgttgcgaggtgacaacattaaat  gtgaatttgcgttatccagctcaaccgacactattatttgcgtgagaactagatgaaaca  ggtagaacaagacctacgagctttatgataccaggtttttgttataacagtatccgtc  attacaggtatttggttattaaaccatttttaggatat</p>

dekvtaaenivsgtptptltpadvtnaatqvtvtnaktqngnhnlevakqnantaidglts  
lngppkaklikevggattlplnvgtvrdnaqtlntamkgirdsianeatikagqnytdasq  
nkqtdynsavtaakaiigqtspsmnaeqinqakdqvtakqgalngqenlraqtakqgh  
lnglsdltdaqkdavkrqiegathvnevtqaggnadalntamtnlknigiqdntikqgvn  
ftdadeakrnavtnavtqaeqilnkagqpntskdgvetalenvqraknelngnqnvana  
ttaknalnlttsinnaqkealksqiegattvagnqvsttaselntamsnlqngindeaa  
tkaaqkytdadrektayndavtaaktlldktagndnkaaveqalqrvntaktalnqde  
rlneaktakqgvatmshltdaqkanltsqiesgttvagvggiganagtldqamqlrqs  
iaskdatsesedyqdanadlqnayndavtnaeglisatnnpemnpdtinqkasqvsaks  
alngdeklaaakqtaksdigrltdlnnaqrtaanaevdqapnlaavtaaknkatslntam  
gnlkhlaekdntrsvnytdadgpkqaydtavtqaeaitnangsnanetqvgaalnql  
nqakndlingdnkvagakesakralasyslnnaqstaatsqidnattvagtvaqntane  
lntamgqlngindqntvkkqgvnftdadgkddaytnavtnaaggildkahgnmtkaqve  
aalnqvttaknalngdanvrqaksdakanlgtlthlnnaqkdltsqiegattvngvngv  
kkaqgdldgamqlrqsaiankdqtkaseniydadptkktafdnaitqaesylndkhgank  
dkqaveqalqsvststalngdanlqrakteaigaidnlthlntppqktalkqgvnaaqrv  
sgvtlknasatslnnamdqlkqaiadhdtivasgnytnasdpkqgavtdaynaakniavg  
spnvtlnaadvtatqrvnaetglngdtnlatakqakdalrqnmtlslsdqkqsitqgi  
dsatqvtvgvskdnatnldnamqlrnsiankddvksqpyvdardrkqnayntavtna  
eniinatsqptldpsavtqaanqvstnktalngaqlnankkqettaninqslhlnnaqkq  
dlntqvtnapnistvngvktkaeqldqamerlingiqdkdqvkqsvnftdadepkqtayn  
navtaeeniingangtnangsqveaalstvtttkqalngdrkvtdaknnaqtlstltdnl  
mnaqkgavtgninqahtvaevtqaiqtqaelntamgnlkslndkdtlsgsqnfadape  
kknayneavhnaeniinkstgtntvpkdgveaamqvnatkaalngtqnlekakqhantai  
dglshltnaqkealkqlvqgsttvaeeagqnegkannvdaamdrlrqsiaadnatkqnqny  
tdasqkdkdaynnavttagqildqttsptldptvinqaagqvsttknalngnenleaakq  
gasqslgsldlnnaqkqvtvdqingahtvdeanqlkqnaqlntamgnlkqaladkdat  
katvntftdadqakqayntavtnaeniiskanggnatgaeveqaiqkvnaakqalngnan  
vqhakdeatalinssndlnqakkdalkqgvnattvagnvkvqtaqelnnamtklkggi  
adkeqtkadgnfvnadpdkqnaynqavakaealisatpdivvtpseitaalnkvtaqnd  
lngntnlatakqnvqhaidqlplnlngaqrdeyskqitqatlvpnvnaigqaattlndamt  
qlkggiankaqikgsenyhdadtqktaydnnavtkaeelkqtnptmndpntiqqaltkv  
ndtqalngnqladadkqaktlgtldhlnadqkqalttqveqapdiatvnmvknagm  
lnnamtnlnnalqdkdtetlinsinfddadqakddaytnavshaegilskangsnasqteve  
qamqrvneakqalngndvqrakdaakqvtnandlnqakkdalkqgvdaagtvanvnti  
kqtaqdlngamtqlkggiadkdtkangfnvadtqkqnaynavahaeeqisgtpnanv  
dpqqvagalqgvnqakgdlnghnlqvakdnantaidqlplnlngpqtalkkdqvshaelv  
tgvnaikgnadalnnamgtlkqgigansqvpqsvdftqadqkqaynaanaqagqiang  
iptpvltpdtvtqavtmmqakdalngdeklaqakqaealanldtldlnqpprdalrni  
nqagaltavetqknaqnvntamsnlkqgiankdtkaseniyhdadadkqtaaytnavsq  
eggiinqtntptlndpdeitraltqvtdaknglneaklatekqnakdavsgmthlnadqkq  
alkgqldkqtaeyntavneaaaminkqgqnanqteveqaitkvqttlqalngdhlqvakt  
qavakaeallnkqsgtnevgagqvesitnevnnaakqalngndlnanakkqakqqlanlthl  
ndaqkqsfesqitqaplvtdvttinqkaqtlldhameilrnsvadnqttlasedyhdtaq  
rqndynqavtaanniinqttsptmnpddvngatqvmntkvaldgdenlaaakqgannrl  
dqlhlnnaqkqqlqsgitqssdiaavngkhqtaeslntamgnlinaladhqavegrgnf  
inadtqktayntavneaaaminkqgqnanqteveqaitkvqttlqalngdhlqvakt  
natqaidaltslndpqtalkkdqvtaatlvtavhgieqnantlqamhglrqsigdnat  
kanskyinedqpegqnydqavqaanniineqtatldnnaingaatvmttkaalhgdvkl  
qndkdhakqvtvslhlnnaqkhmedtlidsettrtavkqdlteaqaalqldmalqgsia  
dkdtrassayvnaepnkqsydeavqnaesiiaaglnmptinkgnvssatqavisskna  
dgverlaqdkqtagnslnhldqltpaqgqalenginnatrrgevaqklteaqaalngamea  
lmsiqdqqqtteagskfinedkpkqdayqaavqnakdlinqtnnptldkaqveqltqavn  
qakdnldhgdqkladdkqhavtdlqnglqnglmpqrqalesqinnaatrgevaqklaeakal  
dqamqalrnsiqdqqqttesgskfinedkpkqdayqaavqnakdlinqtnnptldksqveq  
ltqavttakdnldhgdqklardqqqavttvnaipnlhnaqggaltadainaptrtevaqhv  
qtatelldhametlknkvdqvntdkaqpnysteastdkceavdgalqaesitdptngsnan  
kdavdqvltklqekenelngnervaeaktqakqtdlqthlnadqiatakqnidqatklq  
piaelvdqatqlngsmqllqgavnehanveqtvdytqadsdkqmayqaiadaenlvkq  
anqqvvdqalqnilnakqalngdervaktngkhddlqalnnnaqddgfkgridqsnd  
lnqiqvdeakalnramdqlsgeitdnegrtkgsnyvnaatqvkqvydetvdkakqal  
dkstgqnltaqviklndavtaakkalngeerlnnrkaealqrlldqlthlnnaqrqlaiq  
qinnaetlnkasrainratklndamgavqyideghlqvissnyinnadnlkanydnai  
anaaheldkvqgnaiakaeaqklqniidaqnalngdqlanakkkanafvnslnqlngq  
qgdlaahkainnadtvsvdtdivnngidldametlklhldneipnaeqtvnyqnaadnak  
tnfddakrlantlinsdntvndingaiqavndaihnlngdqlrdakdkaiqsingala  
nklkeiasnatdgdqliaknaeaelansiinninkatsnqavsqvtaghnaieqvh  
eipkaidankdvdkqvqalideidrnplntdkekqalkdrinqlqgghnginnamtke  
eieqakqalqalqldikdlvkakedakqdvdkqvqalideidqnpnltdkekqalkdrin  
qilqgghdixnamtkeieqakerlaqalqldikdlvkakedakmdidkrvqalideidq  
npnltdkekqalkdrinqlqgghndinnaltkeieqakqalqalqldikdlvkakeda  
knaikalanakrdqinsnpdltpaqkalkalkeideaeakralgnvenaqtldlrglnlg  
lddirnthwvevdeqpavnei featpegilvngelivhrddiiteqdlahinlidqlsa  
evitdpstatisdsitakvevtlldgskvivnvpkvvekelsvvkqalesienaaqk  
ineinnsvtltleqkeaaiaevnklkqaidhvmnapdvhsveieqqqegahieqfnpeq  
ftieqaksnaisiedaiqhmdiekartldtkeekqeaialnqlkeqalqaiqraqs  
deiseqleqfkaqmkaanptakelakrkqaeisrikdfsnekinsirnseigtadekqaa  
mqineivletirdinnahtlqqveaalnglarisavqivtsdrakqssstgnesnshl  
tigygtanhpfnsstighkkldedddidplhmrfhsnnfgnviknaigvvgisgllasf  
wfflakrrrkedeedeelirdnnkdsiketlddtkhlpllfakrrrkedeedvtveekds  
lmgseidkvkhtpflpkrrrkedeedevntnentekvldknehspllfakrrrkede  
dvetttsieskdedvplllakkkngkdngskdkksaskntsckvaakkkkkakknk

513.	<p>atgggaagttttttaaactcgatgactcgaagaagaatcctactatttatcaaaataaa  gatgggcattcttaagcgacgttacgtgtacgtgactttcttgactaggtgttggtaca  attgtctctacatctatcttcactttaccaggtgttgctcgcggtgagcatgccggacct  gctgtggcattatcattcttattagctgccattgttcagggtcttgtagcctttacttat  gcagaataatggcactctacaatgccttttctggtgacagcttattcatggattaatgtactt  tttgggtgaattatcggatgggttgcgggttggggcgttttagcagaatactttattgct  gttgccttcgttgccttcaggctttctgtctaacttaagaggcttattgcaccattaggg  atttctttaccctaaatcattatctaactcatttgggaagtaacggtgggtgctattgatatc  attgtgctgtagtgattattttaactgcattactattatcacgcgggaatgaacgaagcc  gctcgatggaaaaatgtattggttatattaaagggttagccatcattttatttggatt  gttgggtctaactgcgattaatctcagtaactatataccattttatccagaacataagggt  actgaactggcgactttggagggttggcaaggattttatgctggagtttcaatgattttc  ttagcttatattggttttgactctattgtgctgaattcagctgaagcgattaatccacag  aagacaatgcctagaggaaatttagggctactcatagtagcaattgtattgtttgtggcc  gtagcacttgttcttgggtgcatgttccactactctcaatcagctgataatgcagagcca  gtaggttgggcattacagagaagggtgcatggtattattgctgcaattgttcaagcaatt  tctgtcatcgggtatgttactgcatttaactcggtatgatgcttgagggttcacgtctatta  tattcatttggcagagatgggttactcccttcttgggttaagtcaattgaatcacaacat  ttaccctaactcgacactgtgcatacttacaatcattggcgtagttatcggatcaattgttc  ccgtttgcttcttagcacaattgatttccgcagggtacccttgttgcatctattgttgtg  tcactagcaatgtatcgattagaacacgtgaaggggaagatttaccctaagccagagttt  aaattacccttatctctatttgcctgcaattacatttatattagttatgctagttatt  tggggattaaagtttgaagctaaagttgtatcactgatattggtttattgtagggtataatt  atttatttaatttatggaattagacattccaaaaagaaatgatgaagaagcgatcaagta  cctagagaa</p>
514.	<p>atgacaaagaaaaacggtttatcgcttagtgagtggttgccttaaacatctaaaagacat  aaaaggaaaaatacactttacacggcaattgtacttttagtagcgttagttctactcata  tttgcgtttaaatcaatacaagtagaacctgtaaaaaagtgatagagagacaaagatagc  attcgtatcacctatttaggtaacgtcactttaataaaacatatcgacaaactaacttg  aatgatgtttttaagggtattcaagatacttttagatcatagtgatttttcaacagggttca  ttaatagtaaatgatttttcaagaatacaaaaagataacataaaataaattatgaaaat  atcatgtttctacgcaagcataatgttaaaagtgttaacttaactcaacgaatctatggat  aatattcaagcgacagcaatgatgagaaaaatagattcccaagcaggttataattttta  acaggttaattggttcaaatccaatataatagtaaaactgtacaacagacattaaaggtaaa  aaaatagctaatgtttcattttaccgatatcgaatctaactataactctttaaaaaac  acgacgtcaattagtttagatccagctataattttatccttttaataaaaaaataaaggaa  aataatgtattacgtcgttagtcaatgtagattgggggatacctaataacgaatgtgact  acacgtcaaaaagaatattgcacatgcgttagcgcaatgctgggtgcagatgtcattttggt  cataatcacagttatttcaaaaagttgaaaaatttaagcgaacgcctatttttatagttta  ggtaacacacagctctgataacttcttatcaaaaaatcagaagggaatgattgtacaacaa  gactggaaaaggttcgcataatcagttccatattcacaccaattcaatcaaaagatggaaaa  atctctaaagataaatatgaataaaatggatcatattcgattcaaaaaataacattaaagat  aaatcaattgattttaaactctgatcaaaatggagggttatacttttgaatat</p>
515.	<p>atgattgaacatttaggaattaaatacacttatttgggatatttagtatcattataacca  tttgtcatagcgacttattttataaaaaaacgaattggtttcttttactagcaccttta  ttcgttaagtattggttgacggtattgctttttgaaattgacaggaattagttatgagaat  tataaaatcgggtggcgacattatattttcttcttagaaccagctacaataatgctttgcy  attccttttatatcgcaagcgcggaagtattaaaaaattattggttacaataatttgggtggt  atagctgttgggtacaaattattgcttgggtatttaatttattctgttgcaataacattccaa  tttggcaatcaaattatagcatctatgctacctaagctgcaacgacagcaattgcatta  cctgtatctgacggtatcggtggtgtcaagaatttaacctcactcgaggtatttttaaat  gcagttgtcatttctgcttttaggtgctaaaatagttaaaattatttaaaatctaacct  attgacagaggacttgactagggacaagtggaacacatttaggtgtcgcggcagctaaa  gaattgggtgagactgaagaatcaatgggaagtattgcagttgcatcgttggcggtatt  gtttagcagtagttctctatacttgcctcaatcttatta</p>
516.	<p>atgaaaagaacagataaatatagagattcatacaaatatgatgaccaatatacaaatcat  cgttaaacgttcagaagaagatattgatcgacaacatcaagagtcaccaacagagagcaaat  tcaaatcgttgaacacacaaagtgaataatgatagagagattgaaaatcatcctgaacgttat  tacaattggaagagactatcgacgtgagcagcaattggaagaagaaatgaaaatcaacg  aaaactaaaaaatggctgattgcaatcatagttattttactcattattgtagctatcttt  atcacgcgtgcaattatcaatcataataatgataaagtaagtaatgacccctaacgtttca  caaaactataaaaaaggaattgaaaatcaaaacgacgacattaatcgacaagttgattca  gcaaaaagcgatataaaaaataaaaaggacaccaatcccaaatgataaaactacaaaat  caaattgatcaattaaaacaaaatgaagaaactaatgcggatttcaaattcacaaaattt  tatcaaaaccaaattcgacaaactgaaaaatgcaaatcaacgtcaacttaataacgaaaat  caaaagtaagttaacaacatgcttgaagacatcaatacaaaaatttgatagttataaagct  aaactagaaaaatcttgaatggatcaaatccaggaaac</p>
517.	<p>atgaacatgaaaaaggtgtttctcagcttacgttacagacattgagtttggctgcaggc  tttattggcatggaggtatcattttctccattaatgccattttttcacaaagatttgatatt  tctccaggacaaatattctgtcatttttagctattcctgttatttttaggttctgtactacgt  gtaccatttgggtacttaactaacattgttagggagcaaatgggtgttttctggagtttt  attgtactattacttccaatttttcttttaggtcaagctcaatcaccgggtatgctaatg  ttatcaggatttcttctaggaattggtggcgcaattttttagtaggtgttacttcagta  cctaataacttttcaaaagacaaagtgtgttttagcaaatggtatataatgggtgtaggtaat  attggtactgcagtttcatcattttgtgccccagtgtagcaggtgcaattggctggcaa  aatagactcgttagttatttaattattctaagtataatttgcatttttaattgtttttta  ggagataaaaaatgagcgaagtgaaagtcttcttgatggctcaagtcacaaagacattatc  aagaattataaagttgtatttttaagtttgggtattttattacttttggagcttttggg  gcttttgggattttttaccgaacttctagttgactcatttttagtattgataaagtggtg  gcaggtattcgttcaggtatattttagcactagcgacgttcttaagaccggttgggtggt  gttattaggtgataaatttaatgcagtaacagcgttatcatcgactcgtgataaagatt  attggtgcgcttatattaagcttatctagtcattattgttctgtttacgataggctgttta  gcaatttagtattctgtgcaggtataggtaaggtttaaatttttaatttagcaccctcatac  tttttcaagaagcaggttcagcgaatggtattgtatccatgatgggaggactaggcggt  ttcttcccaccactgggtgattacttttgaacaggtatcactggttcaagtcactcgcgt  ttcttcttcttggctatatttgggtgtaattgctcttattacaatgattcatttaataaaa  aaagagaagctatttcgtata</p>

518.	atgaaaaataaaaaaggattagggcataggctcttatcacaattatgattatcgtttgtatt gtactagtaacatgatgttctgtgggtggttaagaaagaatcatactacgggtattatgaaa gatagcacgactatttgataaaatgataaatactaaaaatgaaaaaatgaaaaaacgta gaattaccctaaagatgctaattgtatcagttaaaaagaagattttgtgatgctctttaa gatgaaaaactggaaaaattactaaagtaagaaagttaacacgatgacgtacatcat ggtttaattgtcaaaaatccatgatatgggttaatatgaaacacggaatg
519.	atggctatgtcattactcgtgagtccttgggtttatatgatgacactcacatctgatata ttagaagatattctatcatcttaaatagaagtgataatgcaatttccgtatatattaagc tctatttcaataatcattttgtttatacttttcaattttaaagatatgaaaaaatatgg tactggctcatttcaatagttatgattgctgtgataagtatgtctggacacgtgtgtgta caacaagtgcattatgggtcaattatcataagaacaattcatcttatagggtcaacgta tggttagggttcaactcgtttatctcatttggttatgctattaaagtgaataatcagttg acaggtgtgaagcgtatgcttttaaaagttaatatcatgtctgtgattatgctcgtttt acagggatttttaattggctattgatgaaacgaatactttaacactttggaataatgtgagc gcttggctctattatcttgcataaaaaatcgaggaattattgctatgatgctattaggt tctatcaaacgatgctgtgctttgagacaacgacaacaggtccatcgttttgcactgatg actgaattgttaattgggtatgatattaatttttgcaggtatca
520.	atgaaaaactctagattttctgggttccaatgggctatgatggctctttgtatttttctgt atcacaaatggcatgtccgtgatactcagagattttcaagcagactatcggagtgaaacgt tttggcttttagtattaaagatttagctcctttcatagctgcaatttgggtgcatattagta tttaagcacagaaaaagaacaatttagcaggattgaaattttctatcagtttaaaagtgtt gagcgtctacttttagcactcattctaccacttatcattttaatgattggcttggttagc ttaatacttatgctgatagtttcatcctattacaaaacttcagatttatcagttatcatta ttaactatattaattgggtcatattttaattggctttttagtggagtttgggttccgttct taactcaaaaatattcttgaacaagaatgaacacatttttgcgagtattgtcgttgggt cttatttattcagttattacagctaacacgacatattgggtgataaacgcggataccat tctttatatacatcattgttttcaatgattattgggtgaatttaattagagctactaatggt cgtacaatttatattgcaactgcttttccagcatccatgacttttgcctcgtctctttta tttagtgaagaacaggcgaccttttctcaatgaaagtcacgcactttctacaacaatt gtgggtgttctcatttattatttagtctaactcattcgtgctattgtttataaaacgacg aaacaaggttagacgaagtgtatcctaataattatttctcattatcaagatgaagaa ccaagtcagaagaagcgcctcttcaacttcaaatcatgatgtatcatctaaagatgaaca aagcaacaagatattgataatgacaaacatcaatcaagaacacctaataagagtacgat gcacttacttcttaattataaagaagcgcctctcagtttaataaagaacggataca actcacaatgataacattaaagatcattcaacttataccgaagatagacactcatcgtt gtcaacgatgttaagatgaaattcacgaagtgaagatcataaagccgacacagataaa tcacat
521.	atgaaaaataatgagttgcaagggttggaatgcacgtcagatgcagatgattgctctt gggtggaacaattgggtgttgggtcttttatgggagcaacaagcacaattaaaggacaggt ccatcagttattcttgcatatttatttgggtgatttttttatttttaatacatgagagcc atgggtgaaatgatataatccaacacactgggtcttcttgcgacgtttgctagtgcac tatattcactccagcagctgggtacatgactgcttggagcaatgatttcaatgggttgc gtcggcatgagtgagtgattgcagtaggagaaatatagaactactgggtcccaagcctt cctaattggataccaggagtgatagcagttctcttttggatgggtgctaactagtttca gtaaaagcgtttggagagtttgaattttgggttgccttaattaaagtgttaactattgta ttaatgattattgcaggattaggatttaatttttgggtataggcaatggagggaatcca ataggggttcttaacttatgggtcacatgggtggatttatgcaaaatggattcattggattt ttcttggctttatctatttgggtatggatcatacaagggttgaattgattggcatctca gcaggtgaaacaaaaatctcaacaaaatattgttaaggcagtcacaggagtgatattgg agaatttttaatttctatattgggtgcaatttttgcattgtatcagttatccttggaaac caattaggtagttatggtagtccttttgggtgcaacgtttgctaagggtgggcattacgttt gctgctgggttataaaacttggtagtcttaacagcagcattgtctgggttgaattcaggt atttttagtgcaagtcgaatgatttatacttttggcaaaaaaggacaaatgcctaaagta tttactaaaagtaagaaaaatggcgtacctttctacactgtatttgcagttatctatggga atatttaattgggtgctttatataaattgttatacttccatttaatttgatggagctgatag atctttgtatattgtatattagtcctctattttaccgggaatgatccttgggttatgatt ttatttagtcatctaagatttagaagggttacatcctgaaaagggttcacaatcatccttt aaaaatgccgggggggcaattgccaattattttaactatcatgttttactcctagtatta gtcggatgttacttaacaaagaaactgtagttatcggttgggttattgggtatcgtgtttta acagctgtgacactttattatcttatttagatatcacaagaaggacgacaaata
522.	gtgaaaagacttaagaattttattctcggttactcattgtggctatagttgggttccca ttatttatgtatagatgatagtcgcattcaagttatcaagactacttcttacaattt aattgggttccaacacactattgattgggttgcaggattacttatattaatcggacttata ttagttacttagtatttttaaacctacgcatcgcaaacctggacttttaaaaaactttgat gatggacatatttacgtatcagctaaagctgttgaaaaaacaatttacgatacaatcgct aaatattgatacagttagacaaccaaatgttgaagtaagctttataacaaaaagaataaa tcatttatggacatcaagcagatttctcgtaccaaacatgttcaagtttaaggttta acagagagttatccgtgctgatcaaaagtaattgtgaacactttactgaaattcctggt agaaaaattagaagtttaacgtacgtgatcagaaaaacatctggtccacgtgtattg

523.	ttgcaagattttgataacttaattcctggctgggtttaaaacatttgttcaagtcgggaat gacttaatttggctcacaatcttatttggattattttaacagcaggtttttctttaca attagttctaaatttattcaactcagaatgttaccagagatgttttagagcattaaactgaa aagccagaacttttaagtagtggtgagaaggggtatttccacatttcaagcttttgcgatt agtgctgggtcaagagtaggaactggaaatttgcgggtgttgcaactgctattgttctt gggtggcccggtgagctcttctggatgtggattattgcttttatttggtcagctagtgca tttatggaagcaacgcttgctcaagtttataaggtacatgacaaagaaggtggattccgt ggcggaaccagctattacataacaaaagggttaaaccaaaaaatggcttggaaattgtattt gctgttttaattacagttacatttgcctttgtattttaactgttcaagcgaatacaattt gctgaatcattaaatacacacaatacaaatattagcccggttaattactggaatagtagtgc gttattacaggtattatcatcttttgggtgtgttcgtagcattagctacactatcttcaactt attgtgcctattatggctattgtttatataaggtatgggttttaactattttactcaat atagatcaaatgtacattatgattggcactatttataaaagtgcattcggaggtcagcag gttactgggtgtgtgtaggagctgtatttctcaaggtattaaacgtgggtttatttctca aacgaagctgggtatgggtatgcacctaattgctgctgtacatctgtgtgccccatccc gttaaacaaaggttttaattcaatcattaggtgtatttcttgacactatgcttgtttgtaca gctacagcaattatgattttattatattctgggtttgcaatttgggtgatagcgcgctcaa gggtgtagcagttacgcaatcagcgttgaacgaacatttaggttcagcaggaggtatttct ttaactgtagcagttaccttatttgcattttcatctgtttaggttaactattactatgga cctaactcaatttgaatttttattctaaataagatgatattatttttttagatgtttt gtagtagtattttagtattttagtgggtgtgttgcataaacagaaacaggttggagtagtgc gattttatttgggtgtttaggttaagtaaatatcatatcaatttaggtttgtcgaat atttgcgtttgagctgtgaaagattatcaaaagacagcgttaaaaggttaagagacctgtg tttaaacccgaaacttagaataaatttatttggcattgagacttggggacaacatgca aaaaatgccccaaaaa
524.	ttgaaaaaagaaatttttagagtggtatttggccatagccgttgcattgcaactatttgc ataactcaataatttgcggaataatcatttctattaaaggtgattcaatggatcctaca ttaaaagatggggagcgtgttagtggttaaatattattggctataaatagggtggcgttgaa aaaggaaatgtcatttgcatttcaatataaaaaagatgattatgttaaaagagttatt gggaactccagagatagtggtgaatataaaaaatgatacactctatgttaattggtaaaag caatcagaacatacttgaactataatgaaaaacgtgaagcaaacgtgagtagtatcacaggt agtttcaaaaacaaaaaatttaccaaatgcataatcctcaatcattgttttcttaaggt aaatattttagtttgggggataacgtgaggttaagtaagatagtcgttcatctcggttta attgacaaagaccaaatttggtaaggtatcgctcagatattggcctttcagtgatatt aaatcctaactttaaatacacaatacactaaaaa
525.	atgttcaataaaggttttgggttagaacaggaatattttttattatgtgttcatactcatc aaactattttaggaagtgcataaggtatttgcctcaatagctactatcatttgggttcagtc ttccttccatttttaatttagtggtatttctctttacatatgtttaccttttcaaaacata ttagaaaagtggggcttccacgttgggttagtataacacaatattcattaggttaata gctatcattcgctatttgggtatcatttatagcactatcattatttccaattataataac ttaattaaacaaacacatcattacaaaaagaagccgaacaatttaattaaatttctcgtta agcaaaatgggataaattaccagatgatgtcacacatcgtatttaaaagcgttaaatcc atgggagatggcgcaacgtctattttatcattcagtgctcatattacgtctttcatc tcaactgtatttttataataatgggtgcctttcttctcgtatataatgttaaaagatcat gaaaaaatttaccagcaatcggttaatttttcaaggagaaacgttaagttttgtgtga gatttataaaagacttaacttcaactttaaatacatattcaaggtcaagtgacagtt agtagtatttaggtatttatttatataaggtttatagcattataggtattacatataca cctttatttagtatttattcgcggcgttagcctaacttaatacatttttaggtccatgggtta tcttttgcacccggcagcgtactaggtattattgatggcccttcaacttttatttgggta tgtgtcgttaacatttaacgcacacaacttgaaggttaacgtgataactcctaacgtaatg ggtaaatcattaaagcatttcatccatttaactatttattgtgtcatttgcagctggagat ttgggtgttttcaacatcatttctgttgcagttccattatcagctgtaatacaaaacatta gtgagcaacatttttaaatatcgtcaacgtatttgcgataaagcaaatagtaattgttaaa gat
526.	atgaatacaatcgttaaacatacagtaggtttttatttgccttctatcgtactaacgctttta gcagtttttgaactctatacactaataatgacattccatgctaaagtaactatcatcttt gggttttgccttcaatcagctgccccttcaattatttaagttcatgcatttaactgaaggt aagatggagctttacaatcgttcaaggttatctttgcaattatcattacttttagtaact gttatcggaacatactgggttaatgcaaggtggacactcttctcactta
527.	atgtcttttcttaggaaacacaccgaaattatatttagttatcatcgttatcgtttca ctttttacaggtctcattatttttataacttacctttaaatacaaaattttaaaggtgac aaaaaggttgatagcgtatgtgcataacgtatgggaattcctaattgccttttttgcgag attataaaagtgtatgagtaaatatttgggtggctttccaattacaagtgccatagtaac atcgtatttgggtatttctagtgatgctgttaggtcacactttatttagaactattaaatc gattatgacatttcaattttcttttagttattggcattatgtactttatcattacatta ttgtcaatgacacaagtgatggcttttttgcctatcgtctttatttctctttacagtt catattgggttacatagtttataaagatgagttgaaccaagacaatcgaagaaccattat atgtggattatttgaactttaggaatgagttatcttatacccaaaatttgcgtatattgga cgtattgacgcaaatgaaattgaatcaattgatattttaagtgtaaatatcattcttcat attatgtgggtatttaggtcagatgggtatattggaatttcttatttctaagacgttcat ccactcactaaagaagaatttaggcgaaggaagcctgaactttcaagaactaataaaggc aatgtatcctaatacaactaaagttcactttaaacaactacaaaataagacaaccgagtat gcacgtgaagactagaagaagtggtgatttagataaaatttagagccaaaaggacaaattt aagcaaaaaataacagcatagtagatatacaagaggacgatttccaaattggatgaaa aaactcaaatgggttaaacctatgtatgttcaattgttttgggtgtaattattctgttt tttgcctttctagaatttaataatagaacgcattatttcttaactgggtgaatgggggtta tcacaaacgcaatattgttagttgagtggttaacattattattgtcattttcattattatt atttatattgcaactacattaaactattattttaagggataaaattattatttacaactc ttttatgggcagttatttattctttaaatttcttacaagaatttcaaatattatgggtacat ggattattattatcaattttcattacgccaattcttattattatgcttattgcaatgatt gttgccttattctttagcgttgagagaaaa



528.	<p>atgttaggagagcaatatacacaaatgaagcgctccagcaaatcggttaactgaaaaata  ttaggttgggttaggttattcttactcatatttaactattgtttcaatgtttattgctg  ctcgatcttttagtaattgatagctcaattgccaatttagaaaacacacttaataataat  gaactcgtaacaacaaattttagccaataatgatttaagtacaactcaatttggtgatttgg  ttacaaaatggagtttgggcaattattgtttattttattgttttggctcatctcggtt  ttagcgtaattttctatgaataaagaattttgtctggtttacttttttaatagtctgct  atagtcacaattccgcttgattgttggattgtaactcaatcatctctatcttattcttt  atcattgcaatgatgatgtttgctagaagagatagaatagaacagtgccatcttattat  aatgaatatgatcaaccatactatgatgagagagggtttttatgaaccagagtcagaat  gaacatggatataatgatgatgtgtatgaacctatgcatactaaaaaggaagatagaaat  acagagcgtaaatcaatagaatgctcagcaacaagattcctataatgggtataactgat  aatcaacccgatgaagatatactctccgatcaactttattcagacgaatgatgataat  gaagataaataattctcaatttccaaaagagcaggtgaaagtgaatgcatctcaacaa  actgaagatgaaccaacagtcattgtcaagacaagctaagtacaataaaaaatctaaaaat  acggattttgaagatgcccacaggaacatatggaaggtaatacaatttgatgacgttagga  gttgttgaaccacaaatttgatccctaaagaactaaaagcgcaaaagaaaagagaaaaagca  gaaatcagctgtcaagaaaaagaaaagagaaaagcatataataaacgtatgaaagaaacga  agaaaaaacagccaagtgtgttaaccaacgacgtatgaattatgaagaaacgtcgacaa  atgatttaataatgaacaagaagatacagataataaacttaatacaacaggaagattcaaaa  aaaaaaat</p>
529.	<p>atggaagagaataaaaaatcaaccttaataatgagaatatgtcgaataaagacgataataca  atccatttgaatgatagtcgaagtaataagacttagagcttttagacggaataaaaaac  gctcgcaacgcagaagagctcgcatagataaccaaagtaagaaaaagatgctacgctc  acacaatcacagttagaactaaaccaatggataaatttattgataatcacagtcgcat  aatcaagataaagaaataaaaaagtgatttaattgaggataaattgaatgatgaagatgac  aatcaaaaataataatgataaatttaattgatcgtagtcttcaacaaacaaagcgaaacg  cgtcaaggttaataagacgaagagggaatttctaactgatactcagagcgaaaaacaaact  aaagactctcgctcatctcaaaaaacataaattactaagtaaatctacttcaaaaaagaa  aaggaaacattttacatcggttcaatagtaataagaggtaactcaaattaaacccgcttagt  ttagaagaaaaagagccataagacgtaaaaagcaaaaaagaatccaatatacaattatc  acactactcatcttctcattgttctcattttactctatattgtttacaccactaagtaaa  atatcaaatgtataatattaaaggtaataacacagtaagtcagagtaaaataaagaagaa  cttaacgttacttcaagttcacgaatgtatacttttagtaaaaaataaagcgattaggaac  ttaaaacacattttacatcggttcaatagtaataagaggtaactcaaattaaacccgcttagt  actgttaacgtgactgagtagcaaatgttgggtttagaaaaaataaagataaaatgtg  ccaattatagaagatggttaagaatttaacagaatacaaaagatgaagtttccatgatgga  cctatcattgatgggttcaagggagacaaaaaacacgaattataaaagctttatctgaa  atgtcacctaaagtgaagaaacttaatagcagaggtgagttacgcaccaactaaaaataaa  caaagtcgcataaagatttttaccagaataatataagcagtcatttggtgacattacaacg  attgcagacaaaatgcaatattatcctcaaatgtcacaatcattaagcagagatgattct  ggcgaaacttaagacaaatgggtatattgatttatcggttggagcgctatttatctctat  caaggttcatcaactgttcaatcggttactgaacaaatgtaaccaagtcacacaaagaa  gaaaatgtagcaaaagaaacttcaaatgtgtgaataaaaatataaacaactctaaa  gaaaataat</p>
530.	<p>atgaagtggtttgttcaaaatgctatcaatcataataataatgttaagtactttcacctta  ttcatcagtcaggatcatatgcaaatgaagatgaaaattggactaaaaataaaaaatcga  ggagaactaagagttggattgtcagctgattatgcacctttagaatttgaaaagacgata  catggttaaaactgaatatgccccgttagatatagaatttagctaaaaagattgcaaaagat  aatcatctaaagctaaaaattgtaaacatgcaatttgatagcttattaggtgcaacttaag  accggttaaaatcgatattattatctccggttagacaacaaactcccgaacgaaaaaaagaa  gtggattttacaaaactttacatgattacaaaataatgtgatgatgattaaaaaagatgat  gcaaaaacgttatcaaaacatcaaaagattttgaaggcaaaaaatttgcgcgcaaaaaggg  acagatcaagaaaaaattgcaaaaactgagattgaagatagtaaaatttcttactcaat  agatcacctgaagctatattatctttaaaggtggaagtagcaggtgtagttgttgaa  aaaccagtaggtgagggcatatttaaacaacaaattcagaactaacattttcaaaagattaaa  tttaattgaagaaaaagaaacaaacatgtatagctgttcttaagaactctcctgactttta  gataagctaaatcaaacgattgataatgtaaaagaaaaaaatttaattgatcaatacatg  acaaaagcagccgaagatagcaagatgattgaaattttatttcaataatggcaggtttt  ttcattaaaaggaattaaaaatactatttttgatttccattagtaggtgtggtattggggct  attttaggctcttttagctttttaaataaagtaaaatttagaccattacaatggata  gcaagtatacatagaaatttttaagaggtactcctatgcttggcaaggtttatttga  tttttgggactactgagctttggggtagatatttcagctttaatttgggtactatt  gcgcttgttataaattcttcagcctacattgcccagagattattagagctggtattaatgct  gtagataaaaggcaaaactgaagctgctagaagtttaggattgaattatagacagactatg  caatcagtagttatgccacaggaatgaagaaattttacctgcattaggttaattgaattt  gtaaccttgattaaagaatcgtctatagtttccacaattggagtgagtgaaatcatgttt  aatgcacaagttgtacaagggatattctttgatcctttcacaccattgttagttgcagca  ttactatatttcttacttacatttgcacttacacgtgttatgaattttattgaaggagaa  atgagtgccagtgat</p>
531.	<p>atgcaacaagaaacgacatcatggtacaacaagaatgggtttatagttttatcactttta  ttcatttttccactaggtttattttctcatgtggaaatttagcaagtgccatctattgca  agaacaatcattactgttgcaatttcagttatcgtattagcaagcattacctattatggt  aatctacaaatgattgtaccagcaacatcaaatcaataaacgaaactaaagaaactaca  gagaaatactgtaaatgataaagacgagcgaatcataaaactgcagtagaagaaacaaaa  actaattatgactccaccacaaagaaataactaaagaacctggaaaagaaaaatgaaatctgca  acacagattggagaactctgcgcttgaagggcaaggtcatattatgatgattttcacatg  tctaaactaggaattttatgatattttaacatctgaatgtaggaaaaaatttgataaagaa  gatgcacaatatgctatagatcatctagaggtgattatgaaaagaatgcacttgagaaa  gcaaaatcatatgccaaagatagcatatgtctaatgactcaatttacgatcttttgggtg  tctaactacggtgaaaaaattacagaatcagaagcaaaatagctatttgagcatttggat  aat</p>

532.	<p>atgagtcataagatattagtatcagaccatcttctgaggatgggtttacaaagtatttta  aaacatccagaattttagcgtagatatcaaaacagatttatctgaaaaatgatttagtaaat  atgattttcaacttatgatgctcttatcgtacgaagtcaaaaccaaagtaacagagcgaatt  atataagagcagcgactttaaaagggtatttttagtaattaatgctcctgattggttaataca  attttctgtacagaacattcagtagctatgttctgtgcaatggcagcaaaattatcctcaa  gcacaccaatctttacgtaacaaagaatggaaatcgtaaaagcatttagaggggtgaactt  tatggcaaaccttaggtgttatcgtgtcgttaggattgggtttggcgctcgctaaacgt  gcgcagagtttcgggtatgaaaattttagcgttcgatccttatttaacagaagataaagcg  aagtcatttagatatcaaattgcaactgttgatgaaattggcgaaaaatccgactttgtat  acagttcacacaccatttaacacctaaaactcgaggaaattgttgggtcatctttcttaac  aaagctaaacaaaacttacaatacataaattgttgccagaggggtattatagatgaaact  gcacttattgaagcatttagataataacttaataagatcgtgcagctatttgacgtattttaa  catgaacctctactgtattccccctctcattcaacatgataaaattattgtcacaccacat  cttgccgctctactgttagaagcgcaagagaagggtgcagctctctgtatctgaagaaata  attgaaattctactaaagggaaattgttgagcatgctgtgaattgctcaaaaatggattta  agcaaatgtgataaaacaaactcaaaagctttataggtttaagtacaactattgggtgagttt  gctattcagcttctcgtatggtgctcggagtgaaattaaagttaaatatgctggtgactta  gcgcaaaatgcacactagtttaattacaagaacaattataacgaacatcttgaagaagat  taggtaattgaagtcaatattattaatgcattagcaatacttaaccaacaagggtgcacg  tataatatagaaaaacaaaagaacattctggcttttagtagttacattgagctagaacta  gttaatgacagataaaaatcaaaattggcgcaacgggtattcgcaggttttggcccaaga  atagtcagctattaatgattactcacttgattttaaacttaaccaaatcaattagtaaca  tgtcataaagataaaacttggtatagtaggacaacacaggcaacctattgggaagtcacgga  attaatatgctgcaatgactttaggacgttaacgatgctggtggagatgctttaatgatt  ctttctattgatcaacaagcaagtgaggaggttataaaaaatttaaatgaacaagcgga  ttcaacaaaattattagcactaagtttaacaatt</p>
533.	<p>ttgaagcggaattttatttaaattttaactcatatttaattgctattatgttaagtcgt  ttattcaaaatgtttacatgtgattttgcccatttatgtttggaccaatattagcggcgtta  ttatgtgtaaaagtattaaaattaaaaatcacgatggccattttgggtgagtcgaattgggt  ttaactactactggagttcaaatgggtctaccttcacacaacaagtgattaaagacata  agtaaaaattggctaactatcgtttttgtcactatcctactaatttattagctttgata  attgcatcttttttaagaaaattgcacaagtaaattttagaaactgcaattttaagtggtt  ataccaggtgcgctaagccaaatgttagtgatggcagaagaaaataagaagaacaaatata  ttagttgtgagtttaacacagacatcacgtgtaattttgtgttattttagtaccactt  atttgcatttttttcaggataaacatcatgaaatgaatcactacaaatggaagtaacc  acactttctcagactttaaatatattggcaataatcatcttatttctcaatgggtgggaatc  atcttatataggaattgcataaaatctccccactaaacaattatttagcacctataata  gttttaaatatattggaatagacaacacatttaacattttcactagatcattggtgttta  gccacagcgcaacttatttatatgatacgtattggattacagattggcaacttaattgagt  gatttaaggggaagaattgcaatagcaatagcctttcaaaaataaatgctcatagtcaca  acgtttataatgataataggaatcacatttgattactaatgaatccatcaatgaattgttt  ttaggagcagcaccaggaggtatgagtcgaatagtttttagtggctatggctactggagct  gatgttagcgatgatttcaagctatcacatttttagaataatttttatattatttgcatt  gcgcactaatgtgttatttatttaattgttaatttaataataaa</p>
534.	<p>gtgaagaaaacagagtagaataattgcattcactcctcatagctctactattcacagga  atgggtatgacgtataagaatgttagttaaaaatgttaatttaggtctagattttgcaagggt  gggtttggaagtcctcttccaagtagatccttttaataaaaggagataaaaattgataaaaaa  gcactttcagctacatctcaaacattagaaaatcgtgtaaatgttctaggtgtacagaa  cggaaaatacaaatcgaagatccaaatcgaattcgtgtacaatttagcaggtatcaaggat  caagcacaaagcggttaaatattatcgacacaaagtaatttaacaattagagatgctgaa  gatcaggttttaagtctgtgttcagacatttaacaaggctctgttaaacagaatttaaa  caagaacttaatacaaccaacaggttacatttaagtaaaaagtaaaagataaaatttaagaaa  gtaactgaaaagattttcaaaaaacgtgacaatgtcaggttagtttgggttagatttcgaa  aaagcgcatagttacaagaagaagctaaaaagcaacaagaaggttaaaaagcctaaattt  atatctgcagcgaggttagaccaaccttataattctagtaggttgaaatttcaggtggc  ttcaattgggaaaaaagggtgttgaagaagcgaacaaaatagctgagttattaaatggcggc  tcattaccagttgatttaaaagaaatttactctaactctgttgggtgcacaaatttggtcaa  gatgctcttgataagaccatgtttgcatcaattgtaggtatagcatttaattttatttt  atgcttgggtttctatcgtttgctggttttagttgcaatcattgccttaaccacttatatt  tatttaacttttagtcgacttcaatttcatatcaggtgtattaaactcactggattggcg  gcattagtttttaggttaggtatggctgtcgtatgccaatatcataatgtatgaacgtatt  aaagatgaactaagaattggagcgacgcttaacaagcgtattcaaaagcaataaaagt  tcattcttaactatatttgattccaacttaacaactgtcatcgtgcagctgtgcttttc  ttctttggagaaggttcagtcgaaggcttcgcaacatgttactcttaggtatttttaagt  atattttgaaccgcagttattcttatcaagagggtttgttatcattactggtatcttcaaac  ttcttttaaaaaacaaactggtttatttgggtgttaagaagaaggtatagacatgattta  gaaggttaagatgtacatgatttaaaaaacatcataagaaggttaaaactttgttaatta  gctaagccacttatttcaacttagttattttaaattgtaattattgggttgattatcatttca  atattttaaattaaacttaggtattgatttctcatcgggaacaaagagcagatttcaatct  aaaaatgctataacacaagcacagggttgagaaaaactgtaaaatcagttggattggaacca  gatcaaatcacagatttaattggttaggaaataaaatggcacagttcagtttaaaaaagat  ttatcacgtgaggaagacaataaattaaagtgttaaggtgaaatctgaatttgagataat  ccacaataataccgtttcacctctcatagggcaagagctagctaaaaatgctgtaact  gcatttaatacttgcttctataggcattattatctatgtttcactaagatttgaaatggcgt  atgggtctatctctgtacttgcatattacatgacgtatttatcatcattgcaactctt  agtttggtttagattagaagtagatttaacatttattgcagcagtttaactatcgttgggt  ttatcaatcaatgatacaatcgttaactttcgaccgtgttcgagaaaaatcgcataaaagt  aaagtaattacgcatactgatcaaatgtatgatattagcaaccgctctattagacaaact  atgacacgttctattaatacagttgtgactgtagttgtagttgtagttgcaataataata  ttaggtgacacaacaaatttaattttctcttagcattactaattgggattattatctggt  gtattctcgtcaattttcattgctgtaccattatggggcatgcttaagaacacagagttt  aaaaagcaaaaaataaataatttagtagtacacaagagaagaatactaacgatgaaaaa  atcttagtt</p>

535.	<p>atgggggaaaaacacaaaacagatttcaatcaaaaaggacaaaatttttaattcacaaaa  aaacatagacgattattatatgtgttcagttttttaaattggtacatcagctattggtcca  gcattttctgactcaaacgcagtggtttactgcacaaattttatgctagttttgcatttgca  atatattttctattattatagatataggcgctcaaaataaattttggagaattattagtg  gtaactgggattacgtggacaagaaatatctaataagttactacgtggacttggtactatt  atctccatactaatgcatttgggtggtctcgcatttaacataggttaatttgcgtgga  ggttttaggtttaaaatgcaatgtttgggtcttgatgtaaaatgggtgctgcaataacagct  atttttgcatacttatctttgttagtagaagtggtcagaaaaataatggatgtatttagt  atgattctagggtatcgtaaatgatttttagtagtcgcttatgtcatggttgtttcaaatccc  ccttatggagatgcatttagtacatacatattgcacctgaacatcctttcaaaccttatatta  cctataattacattagttggtggtacagtaggggttatattacttttgcaggtgcacat  agaattctagattctggtataaaaaggtaagtcataccttccctttcgtaaatcgatctgct  gtagcaggtatttttaacaactggtgtcatgcccaccttatgttttttagctgtactaggt  gttgttgaactggcggttacgcttagttcagaaaaatccaccagcatcagttttccaacat  gcatttaggtctataggtaaaaataattttggcgtagtaattttgacgagcaatgtctc  tcagtaattgggttctgcataacaaagcgcaacatttttaaaaactacacaaaatcggtta  ctcaataaaaaataatcttatcggttatcacatttatgttaattttcaactttgttttctta  tttatggtaaacgggtgagtttacttataatagctggtgctgatttaattggttggattcta  ccaatcacattaggtgcaattctcattgcaagtaggaaaaaatctatcggtggttaattac  caacaccaacatggatgctgtttttgggtattatagccgtaattgtcacataatgact  ggtatcttttcttacaagatttagcaagctcttggaaaggt</p>
536.	<p>gtgtcttaataaatttttaagatgatttcgaaaaagatcgtcaattctattaatccagac  gaacatcaaacagaattaaaagaagatgataaaaacaatgaaataaaaaagaagctgac  tctcaaacagtttatcttaataactcaaatcaacaatttctcccgagaaatgcccacga  cgaaaaagacgcagagagacagcaactaatcaagcaaacacaaagacgacaaacatcaa  aaaaatagtgacgctaaaactacagaaggttcatttagatgacggttatgacgaagcacag  ttcacgcaacaacatgataaatcgcaacaacaaaataaaaactgaaaaacaatcacagaat  aatagaatgaagatggaaaagatgcagctattgttaaatggaacatctgagtcaccagaa  cataaatacaaaatcaacacaaaatagaccggcctaaagctcaacacaaaagcgtaaa  tcagaagatcgcaatcaaaaaccgtcaacacaaaagataaaaaagcagctacaggtgct  ggaatagctggtgagctggtgttgcgtggtgcagcagaacacatcaaacgtcatcataat  aaaaagataaaaagatcttaaacactcaaacacatgagaatgacgaaaaatctgttaaa  aatgtgacacaaaagcaatctaaaaaaggcaaaaaagcagcagtggtgctggcgagct  gcaggagttggtgcggtggtgttgcgcatcataataatcaaaaataaacatcataatgag  gaaaaaaattctaatcaaaaacaatcagtaacatgaccaatcagaaggttaagaaaaaaggt  ggtttcatgaaaatcttgttaccacttatagcagccattcttattctaggtgcaatagca  atcttcggtggtatgggtcttaataatcacacagatagtaaaagtgatgacacaaaaata  gcgaatcaaaagtaagaaagactcagataaaaaagatggtgctgcaatccgaagataacaaa  gacaaaaaatctgtagtaacaaagacaaaaatctgattctgataagaacgcagatgat  gactctgataatagttctcctaaatcttaacgctacttcaactaataataacgataatgta  gccaataataactcaaatatacaaaccaaaaatcaacaagataatgcaaaccaaaaatagc  aataaatacaacgcaactcaaggtcaacaatcacatcacgtatagcgtcaagaaaaactta  tatcgatcgccatacaatattatggagaaggaactcaagctaacgtagataaaaataaa  ctgtcggaatggattaagcagtaataatattcataatgggtcaaacatttagttattctctcaa</p>
537.	<p>atggctaaaggggacaaatataagctcactactgaaaaatatcatgataaaaagctctaaa  aaaagttataaacctgtgtggtattatcatttagttttatttttaattacaatcttgttta  ttaccacacccagcaggattacctgttaattggctaaagcagcactagctatttttagctttc  gctgtagttatgtgggttacagaagcagttacttatccagtttctgcaacatttaatttta  ggataatgatacttttactaggttttaagtcaggttcaagatttatccgaaaaaacttgga  aaccttaaaagtggtgacataataactaaaaggtagcgataattttaggaaacgaataacgog  cttagtcacgcttttagtggtttttcaacctcagcgttagcactttagtgcagcatta  tttttagcagtagctatgcaggaacaaatttacataaacgacttgcatctatttgtgcta  tcaattgttggaaaataaaactagaaaatagtcattggtgctatttttagtatctattgtt  ctagcatctttgtaccatcagctacagcagctgctggtgagttgtcccaatattactg  ggaatgattgctgcatttaatgtgagtaaggatagtagacttgcttcatttataattatt  actgctgtacaacagctttcgatatggaatataggtatataaacggctgcagcacaaaaat  tttagtcacatcaatttttataacaaaaatttaggacatgatgtatcatggggagagtggt  tttttatatgctgcgcgtggtgcaatcattatgtctatagctctttattttataatgatt  aagtttatgccacctgaacatgatgcaattgaaggtggaaaagagtttaataaaaaggaa  cttaataaatttaggaccagtcagctatagagaatggcgactaattgtgatttcagtgctt  tattattcttctggtcgactgagaaagtattgcacccgattgattcagcttcgattaca  ctagttgctctaggtattatactaatgcaaaagattgggtgttattacttggaaagggtt  gaaaagaagattccttgggggacgattatagttattgggttaggaatctcacttggtaat  gtattacttaaaaacaggagccgctcaatgggttaagtgatcaaacatttggtttgatgggt  cttaaacatttaccgatcatagcaactattgcgttaattaccttatttaatatattata  catttaggttttgcaggtgcaacgagcttagcctctcggttaataacctgtgtttatttct  ttgacttcaacgctaaaatttaggtgatcatgctattgggtttgtattaatacaacaattt  gtgattagttttgttctactacctgtcagtcaccacaaaatagcttgcataatggt  actgggacctttaccgtaaaaggattttttaaagacaggtatacctttaacgatagtaggt  tatatttttagttatcgatttagtttgacgtattggaaatgggttgggttagtg</p>
538.	<p>atgttagatttcatcaccatttgcttagttatcaatttttaaatcgtgcattaatcaca  tctatttttagttgggtatgtatgtggaacgagtggttagcattattgttttacgtggtctt  tcttttaattgggtgatgccatgagtcagctgttttaccaggtggttgcattatcttcttta  tttaatttccaatgtttatcggggcaacttgtaacgggaatgcttgcaagtttggttatt  ggttttattacttcaaacagtaaaaacaaacagatgctgcaataggaataagtttccact  gcattctagcatctggcgtcataattatttagtttaataatagtaacacagatttatat  cacatttttatttggcaatttattagcaattacacatcaatcattttggacaacaattgtc  attactgtactggttattttacttattattatcttttatagaccttaattgatttcaaca  tttgatgcaacttttagtcgtatgagcgggctgaacacacataatcactacttctgtc  atgttattactcgcaactgttaactgttgcgagcatataaacagttggaattatccttga  gtgcttctactaatcactccagctctacagcttttttaactagtaaaacactttatgac  atgattggttaattgcaagcataatcagcgtgataagttcgattatcggtctatatttttagt  tatataataatttccagtggaagcaactattgtaactgtacctttatgatttatatt  gtaacgctatcaattactagaattaaaaataaacaacaaaggagcgctttaacg</p>

539.	<p>ttggcgaagctattatacaaacctagggaaattttatagctaaagcaaaatggctaagtgtt  ataggatggcttggttactactaggtgttattatcacgaccttaagtataaacctaccggaag  tttgacagtgacatcactatgaaacggccttaagtcatttagacacaaacgataaaatcagt  aaagaatttcatcaggacagtgagaagcctcgatgaaaatagctcttccattctaataag  aatgatggagctcaataataaagatacgaagaagaatattgaagatgctttagacaaatc  agacaaaatagatgattatataccaaaatctcttaaatccatgacagctggacaagttaat  gatgaaggcgatcactgctatcgctaacgtaagttatgtagtccacaaactggatataaa  gatctcttcaaacatatacgcgaagaatataaagatgtaacctgaacaccataatgtg  caaatgaaaaaactcaaggtggcgctatgaattccgaacctgggtggtacatcagaat  gtcggtatcactcgtagctatcgtaattcttacttattaccttgggttggatcgcagct  gggtatgccattattatgtgcaatcatcggttttaggttcaaggtgttggtatcatcgactta  ttaacatatactttgatatttccaaactctcactctttacactagctgtgaatgataggttta  gctgttggtattgactactcactcttattctatttagatttaagaacttaagaaaaa  gggtgcgatactgtagaagctattgcaacagcagctgggtacagcaggcagctgcttaata  ttcgctgggtcttaagcttatgattgctgttttgggtttatcatctgtgaagtaagcttc  ttagcgggtatgggattcgcttcagcgatttagtgtgttatttcagattatagcagctta  acactattacctgccttaactcagatcttccataaaagatttaaaatataagataaacca  actaaagtaaaagacctaaagatcattcttgggcaaaatttattgttgaagcaggt  attcgctgttattgtaagtttaattattttaatttttagctgctataccagctagtggtcag  cggttaggtattccagatgtagttttaaaacaaactgactcatcagatacaaacacgtat  aaatatactcagataatttttggcgaaggttataacggcaaaatttgcattgttagtaaat  acaaaagatgggtggaagttaaagcactatcgaaactgatttaaaataatgcgtagtgat  ttagaagacatttcataatgtttgatacagtttcaaaagcacaaactaactgacaacaaat  tacgcatatttcacaatcattctctgaaaagggaccgaactcacagtaaacagaatctta  gtatgatgtttacgtgattatcatagcgaagcgaagaaaaatagactatggcactgaa  atctcaggacaaggtgtttataacatcgatattgcagaaaaactaaacacagcttatccca  gtattttcaggcgcttattgtgttattggttattcttatttaattagttgtgttcggttcg  atcttagttccattaaaagcagctactaggtcttattctcttatttaattgggtacattaggt  ttcacaacatttagtcatccaacatggctttatgggtagcttatttggttatgaaaacaca  ggaccattacttgactctctccagtaatacacaattggattgttatttcggtattgcccac  gactacagctctcttctaatgacacagtgatcatgaagaatacagataagactggcgataat  gatcatcattcaatcggtgttaggtatcaagaagaagtggaactgttattcgtagctgtcact  attatgttcaggtgttattcatcgcatctgctcttccaagatgacagctgaatttaagtcagt  gggtatcgcattaggttttcggtgtgttatttcgacgcatctgctgtagctatgacatttaatt  ccagcatttgacgaactcttctggtaaagcttctgggtaccttcttaaatgggttaggtgca  gtattgccaaactgtgacgttgaaggttaaagctttagaagaagataatcatcacgacaca  tcttctgaaaaaggtcatgtccaagataaaaattagtgaaactctagacaagacaagaat  aacctatgttttatacaaaatgacaaaactgataacatcgcaattataatgacgaagattat  aacgttctgtgcatcttaaaataatcatcatgaccagcatcatcgccaacacatcaatgat  aatcaacgctgatgatctgactatgaatcactttatactcaagatggcgaccatactcat  catgatgaacgtaattataatgatcgacactatcaagacaattacgataagaattgatgat  tatcgtcacacaacatcatgactcatcaaaatgataacgactattcatgatccaatttt  gtataaaacacaacactatacaaaagatttaactgatagcaaatattgatcaagattgatt  ttcaaaagcatttaattgttatcacgctcggtgaaaacaaaaggtgtttacgatagataaac  cgatcatctcaacatcgtcatgatgacgaacttagagac</p>
540.	<p>atgaataaaaaagtagaacatatcggttaaccaatatagctcacagaaaaataagaaaaaa  acgacacaaaaatgaaaaatcggtgtgttgcgtacgtatattgctttattcgagggtatt  cttttagcgattatctctacttctacttattgttattgttcatcaagacataataacgcat  caagatcgagttgaagggaagagaagaagaactgagtttcaaaaaacacagatgaagaa  attgcttttaaagagaacttaataatttaaatgataaagacttatcgagaaaaatagcg  agagcagattatttttaagttaaaaggtgaagtcatttttagattacctgatgataaa  aaatctctcagtcgaagacttcaaacgaaaaaggcaat</p>
541.	<p>atgaagatacgtttaacatttattatcttagcaactatctccaccatcggttagtactt  gttttagcaaaatttccaaacagggccacacacaaactatacgaacatttatcagta  ctcatagccattacgacaatagttataatggctttaccagcactcatattaggtatattt  aatcatcttcgattagaaatcatatcggtatattacaataaagtgacgtgatgtgtg  gggttttttagtaacttagcttaattatgggcaaaattgtcatattgtatttggtctcc  ttaacgatacttgcatacttctttagttctattgtcacactttcagtgccccatctact  tcagataaaataaat</p>
542.	<p>atgaataaagaacatttggtagcatcattgggtattgttaattatttgcgtatataactatt  gctgctttttatataaaacaggttaattgggttcaggttagtaagaatgatattgcttaccat  acatatcagtaagaagaagaacacactatagtttagaaggcaagcgcttccagaatct  gtgaaaacttatacaataatcaactctgtgggttaacttcttaagttttcagtaacaagt  ggctcaaacaggttaaacgaaggtgaacgtatcatcaaatatgatcaaaatgggaacgc  caacaactattgaacaaagtgatcaagcacaaactcaagtttaattgatgtattcaaaaa  gtaaatcaagcttcaacatcatcaattacaagtttaagttgactcaagatcaaggtgct  ttaaataagctcagcagtcatttgtcacaaatgacagacaaactcaatgacagcatgaat  gcacatttttaggtgtaaaatataacataaaaaatgattcagattgagcgaggcgaaact  attttgcaatttaatttcttcaaatctcaaaataacgcaacttatcacaggttggaattt  aataaaatataagagggcgatgaagttaattgtcactgtaaatgacacaggttaaaaaagg  aaaggaaaaattcttaaaatagatgaacttctcacaagctatgatacaagtgacgtatgt  acagcatcatcgccacaagcaggggcacaaggtgatagtgaaaggaagcaatgaaatgacg  acatctaatctcaaatattcagccaacaggtggtaaaagtgggcaaacatcaaaat  aaagttatcatttggtgatttagataatcccgtagagtcaggcttctctattggtatgctaaa  atctctcttaaaactaaaaagctacaaaataacgtgtttaacaaaagataataacgtattt  gtcgttgataaaaaataaaaagttcacaacagtgaaatataaattgaacgttaaataggt  gaaatcattgtgaaaaaaggattgaaattctggcgataaagtccttaaaagtcctaaaaggt  aatttaaatgagcaaaaaaggtgaggtgtcatca</p>

543.	<p>atggctgaaactactataaatatttgaatcacatttgggtcaaacaggctctaaaagacagt  gtattgaagctctatctgtttatatgattaaaaatccgattatgtttgttgaagaagt  ggcatgctgcttgccttaggatataccatttatccggatttattccaccaagaaagtgt  tcacggctatatgtgttcagttatctttatcatatttactgacacttgcctttgcgaac  ttctctgaagcattagctgaaggtcgcggttaaagcacaagccaagcctttacgcaaaaca  caactgaaatgaaggcagctcgtattaaacaagcggcaggttatgaaatgattgacgct  agtgacctgaaaaaaggacatatcgtacgtgtcgcgacaggtgaacaaatccaaatgac  ggtaaagtattataagggcctcgcaacagtggaatctgcgattacaggtgaatctgca  cctgtaatacaagaaagcgggtgagatttcgataaattgaaatggaggaaacttctgtagct  tcagactgggttagaagttgagattacttcagaaccaggtcattcatttttagataaaatg  attgggttgggtgaaggggctacaagaaagaaacacctaataaattgcgttatttact  ttattgatgacattaacgattatcttcttgggtcgttattttaacgattatccattggcg  aaattctctgaattcaatttatccattgcgattgctgtatttgggtgtgtgttaatt  ccaacaaccattgggggattattatcggctatagggattgcagggtatggatcgtgtgaca  cagtttaataatcttggctaaaagcggacgttctgtagagacttgggtgattgaaatgtc  tgatttttagataaaacaggtaccattacctaaggcaacggtatggcagatgcgtttatt  ccggtgaaatcatcaagcttgaacgttttagttaaaagcggcctatgaaagtctatcgca  gatgacacacagaggagcgttagtattgtgaaattagcttataaacaacatatacgactta  ccgcaagaggctcgagaaatataattccgtttactgctgaaacacgtatgagcgggtgtaaa  ttacgacacgtgaagtataataaagggtgcacgaatagtagtttaagcgtgtgaaagaa  gcagggggacatatccaggtgatttagacgctcttgcgcaaggggtgtctaaaaaagggt  gcgacacgcgtggttgcgtgaagataatgagattttagggtgttatttattgaaagat  gtcattaaagatggactcgtagaacgtttccgtgaattacgtgagatggggattgaaacg  gtgattgtgtacaggagataacgaattgacagctgcgacaatagcgaagaagcgggtgtg  gatcgtcttggcagaggtgtaaacctgaagataaaatcaattgatttagagaagaacaa  gcgaaagggtcatattgttgcgatgacgggtgacgggtacgaatgacgcgccagctttagca  gaagctcaatgtagggttggcaatgaactcaggaacatgagtgccaaagaagcggcgaaat  ttaattgatttagattcctaataccaacaaactgatggaagtcgttctaattgggaaacaa  ttattaatgacagctggctcactcactacatttagtattgcgaatgacattgcgaatac  tttgcgattttaccagccatgtttatggcggtatgcctgcgattgaatcatttgaatatt  atgcattctgattcactgaatcagcagttattatcgcgttaattcttaattgcgttgatt  attgtatttattgattccgattgcgattgaaaggcgtgaaatttaaagggtcctcaacgcaa  accatattgatgaaaaatattgttagtttaccggttaggcggtatgatcgtgccatttacc  ggcattaagctcattgatctcatcatccaactctttgtc</p>
544.	<p>atgattgtgttacgtcgtctatttcaagatagagggtccatatttgcctatagctattatt  acaattacgttagtgcttggagtttttagctccttttaattacattctatgaaccgaatcac  attgatcacgcaataaatttgcgtgataaagttggctcactgggtgggaacagacacat  ttaggctcagatgtatttaacacggataataacgccaataagacctagtttgccttatatgta  tttgcgcttgcatttatttccggttgcgattagggagcgaatacttgggtttatttcagggttat  ttcccagggttatatcgatgcaataattatgcgttatatgcgattgtgattagcttttcca  agctatgtgttcacattggcattgattacgttgtttggcattgggtgtgaaaaatattatt  attgcatttatattgactcagatggcggtgttttgcgctgatttcgaaccagtgtaagt  caatatattgaagctgatcatgtaaaatttgcgaagtaattggtatgaatgatttaaca  atcattcgcgaacataatttggcactaacctttactgacatagcgattattgcttagtagt  tcgattgttccaatgatattacaatgtcaggattctcattccttggattaggtgttaag  gcacctacagccgaatgggggatgattgcttaataagcagcaaaagtaattgtcacacat  cctggaaatgatgatgacaacagggtgtggtatcgtcataattgtgattggcgtttaacttt  ttatcagatgctttacaattggcgattgattcctcgtatgtccgctaagaaaaaacgactg  gctctgaagaaagggtgtgaaagcagctgacactgct</p>
545.	<p>atgaaagggtgccatgtcttggccttttttaagattatataatttaacattgatgttttt  agtgcgaatgccatactcaatgttttcataaccttaagaggacatgacttggggcgacg  aatactgttaattggaattgtaattgggagcttatatgctaacggcaatgctatgtcgcccc  tgggctgggtcaaatatttgcacgtatttgcgttaaaagtattgcgtattatattattg  attaatgctatggcactgggtatttatatgggtttacaggacttgaaggtattttgattgca  cgtatcatgcaagggtgtgtgtacggcattcttctcaatgtctttacaattgggtattata  gatgctttacctgagaaatattcgttcagaagggtgtatctctctattcattattttcaacg  attcccaatttattaggaccatttaattgcagttgggatttggcagctggaaaaatagtcc  atatttgcattgttattgatttttattgcagtaacaacacaccttatttgggttatagaact  acttttgcgaatacacaaaaagagggtatcaccaaaagacgaagtccttgccttttaagca  atgactgtatatgtccaattttttaaaaaaaagcactcttctgcagtggtatgattatg  atcttgcctatctcgtgttgggtgcgattgagtttttataccattatatacgggttagg  gaagggttcgcgaatgcagggtattttcctcacaattcaagccattacagtagtgatagct  agattttatttaccgtaagtagtaccatctgatgggtttatggcattcaccgttttatgatg  attgtcttaacgttactgatgggttgcctcagtcattgtagcttttggaccacatatagtg  agtatatattgtatatataagtgcaatctttatcggaataacacaagcgtcgtttatcct  acattgacaacgtatttaagttttgtcttaccaaagataggacgttaattgttatttagga  ttgtttatagcatgtgcagatttagggatttctactaggaggtgtgtaattggggccaata  tcagatacggtaggatttaaatggatgtatattttatgcgctttattgttactattgca  atgacactaagtaaaattagacaaagacaaagtggttttcaaaagcctca</p>

546.	gtgggaagtactgttaaatatcgtaagtttattctacattgttcgttgggttaattatc tgggcattgacgcctattaaaccagatgccttaaatgatcaagcttgggtttatgttgc attttgtgtcaaccatcattgcttgcattacccaacctatgactataggtgcagtatca atcattgggttttaacatcatgattttgttgggaattgttgatacaaaaactgcggttcaa ggcttcggtaagtagtatttggcttatttgcaatggcctttttcatttcaaggagattt gtaaaaacagggtaggtcgacgtattgctctgcaattcgttaaaattattggaagaaa acgcttgggttggcttattcacttgggttgggttgcattttagctcctgctacgcca agtaatacagcacgtgctgggttattatgtttccaatcattaagtccttgcagagtca tttgggttcacgcgcagagatgggttctgagagaaaaatgggtgcggttttaactcttact gagttccaaggtaatttaattacttcagctatgttttaacagctatggccggtaaccct atagcgcaaaagtttagctgaaaaaacggcacagcttcaaatatcaggtgaattgggtt gttgcgtctattataccggattgatttctctcatcgttgccttctcattattataaaa ttataccaccaactgttaagaaacgcctaacgctaaaaaatgggtactgaacaacta gaagaaatgggacatattgctatagccgaaaaatgtatgggttgggtattcttatcatagca ttggcttttgggtattaggaagcttcatattatgttgatgccacgctcactgcatttatt gcttttagcattgttactattaacaggtgtattagcgtggtcagatattttaaataaaca ggcgcatgggaatacactcgtttgttctcagttctgttattatggcagaacaataaac aagttaggctttatccatgggttaagcaactcattgctcaaggtttaaataaggctttagt tggcctactcgttttagtttactcatcttgttttatttctactcacattatttattcgca atggcaacagcacatgtcagcgccatgtacgcgcggttactcgtgttgagctcgcttcg gggtgacgcgcatttactcagtcattatgttaggggttcttggtaacttactggcatca acaacacactatagtagtgaccagcgcccatattatcagcagctggctatgttacacaa aagcgctggtggactatgaattttagtcttgggtatagcttatttattatttggattgggt gtaggttcactatggatgaaactcataggtatgatg
547.	atgaaagataaaaaatgttgggtcattatttttatgatatggaacatttacagtaggaatg gctgaatatgttagtgacaggtattacttacacaatcgctgacgatagaaggtttctatt tcgagtcgaggtttattaaattagttttagctatttagttgcatgtagggccttta atgcgaatcataacattgaaagttcacgcccacgcctgttaccgatttttagtagcgatt tttataaataagtaatttagtgggaatgttagcaccgaattttaaattagttattatca agactcatgtctgcgcaatgcacgcgcattcttcggtgtgtgtatgagtggtgctgcg acagtcgcacctcctgctaaaaaacacagggccattgcacttgggtcagggcaggtttaa atttgcgttaaggttaggtgtaccattcggatcatttttaggtggctttgcaaatggaga gttgttttggatttatgattgtgttggcaatcattactatgttaggaatgattaaattt gttccaaatgtttcttaagtgcaagaacaaatattagcaaaatataacaggttttaag aatccacacattttaaattgtgattgcaattattgtgtttgggttactcgtgtgtgttact acttatacattttaggccaatgatacagagatttttctccatttaaattttaggtttaa actgtttgtttatttattgttgggtcagcggtgtgatagggaaatttaattactggta gtaccggaagataaaatacaaaaaatttataccctacatttcttactatttgaataca atcatactatttgttactgttattcaaaattcaatattagcattatcatttgccttcta ttcgggttttgggtacatttgggtacaccccggttacttaataagcaaaattatcttaagtga aaagagaccacttcttgcaggtacgttagcagcttctatttcaatgttgctaaattt cttgggtgcaataattggatctatattattatcaatagggttaccctacattcaaatatt ttgatctcgttgggaattataggttgggtatgcttcttaattctgttaatacaacttat gaaagaaacatacacatttaatagaatttca
548.	qvlkmlqnilmlmlmlmlkikvliylmtilngfrdmvklrfinnkslwaien
549.	krlvmqghlqfnlpkiillnaltkrflslvtqlvmvfilvsvllkvpvqlq
550.	lrlrqfqlctvlmlvalflhaflylmtk
551.	rlrytsyiklaatdafklltctptigili
552.	ssvfairltitfsrfsnvckkhhkgaiimkkeiiewivaiivaiivtvlvqkflfasyt vkgaanviyh
553.	rsvphivltmrriiasvllvivgfsfsvsca
554.	tanniisfiitlttniykklmgfyffnielrnkfirrcwailfiaaihfisecflphipt ncyvsrfdldsakmsyktlnticrnsfrivhkliv
555.	ffcriltqlnwlysvrmlymfmlfsmnhivstic
556.	ifistcgcsttsawkaevlplrvrfpsapf
557.	lknllrvfiagltvffsgpgqtsynaafideyigtfgwrtv
558.	rnsnqmyqtftadivlfmiivlvgglvqvvpmpilagimvmvsetiyclhl
559.	nqrleetissphhsal
560.	mkqfinitqrkfiewliilsifivsiipnkwltlmisiall111krgalgvvqliiylmlr sqlytpydtqemahyivsmkyliiyvvgvfflkyvkhwrnemilrfikstmlmllyi imslvsnopiesilklnffiplilivmyvslkiklinwinqfitlviaftffiv iapksylideeslrsvfkdaahfaviamglvymvtiikqgdydvfnlllnigmiely lsnsrhifisvilclml11plshikkrikhpiigamilmaiaingpyihlfiklikg knsqevfmpsdnnikaidyaltehpfllsgfipmikasseigyfnvatsniifgmift giigltletiymlhmvllvtfpmisitillflitifvnmidyilfdsvglilicyifwgiy lkegmyqynngw
561.	mtngktvlgvvpavterlaenliqempkmlsthydhggewifdlvtdplgtfaesvdei fgkvadyhdkrgwyviaitdlpmfadkqvmaldinmengaaifsyafgwrpvkkrfk alynliigelneaeqesrnydnkqliensvkkqfplskidketiymketdsyhlrylssr srgmfrlvsgmtfannplnmasslnivaiafttgafglvfttmwgmaynfsmwrlfgis iaaiigmlwimmshdlwepvknshkhitwlymlttimtlifaaiiyyiylilfliae ivllpsgfgqvgvlgkpagidlylsipwfaasistvagaigagllndelikestygyrq rvryeeqr
562.	mkfcpchgnpikqesfcnkcgkhlktstqrksenqiehmreqqsyisreerqhhdstfy keqkhtgwlivlsiiifvlllaalygayaynyhysideqshqttesqgsnesdqnrdqst gpsidvfdsdqgymksastsgyrgvnygmtreevedkfgtsngsvslkwsyetygd avayddnevsvgvapnhisedqflsmynepddrnssqliydsnknddfsvlanvknsgdv tvienvngi
563.	mlfiiieiiimilailglrtagalgcgfaivaqlimifgflppgsapvtavliilsi giaggtlqatgldylvyiasrvierfksiifiapmivfvfvgigtaniaalslepiia ktagkariopkraltasvltanallcspaasatayisvlagyeismgkylsivlptal ismllpctfctfvgrkehvrdeserlvqmpveikndfslkvkigvisflcvmgiltfg ifpnlmpqfnvngdvkvemteivqffmlylsatinlllikintsdlssnitqsamgalf avlgpgwlgatfnaphnlkilndigsiisevpwlvilsvvamiisqtatasimvp ivmsigiplyfvamvqtlvnmfvipagptllfaveldetgrtrptsfmipgffvittvsv itgfviktily

564.	mgsffnmtrkenptiyqnkdghlkrtrlrvdrflalgvgtivstisftlpgvvaaehagg avalsfliaaivaglvafyaemastmpfagsayswinvlfgelfgwvaggwallaeyfia vafvasgfsanrlglaplglislpkslnpfgsgnggvidiaavvilltalllrgmnea armenvlilkvialilfivglitainfsnyipfipehkvttetgdfggwggiyagvsmif layigfdisaansaeainpqktmrgilgslivaivl fvavallvlgmfhyssyadnaep vgwalresghgiaaivqaisvigmftaligmmlagsrllysfgrdglplswlsqnlhkh lpnralviltiigvvgismfpfaflaqlisagtlvafmfvslymyrlrkregkdlpkpef klplylpilpaitfilvllvfwglsfeaklytlwifvigiiliiyliygirshskndeeayqv pre
565.	mtkkrlspsewllkqskrhkrkntlytaivllvalvllifavksiqvepvksdtrdkds iritylgnvntlnkhirqtnlndvfkigqdtldhsdfstgslivndfsrnqkdninknien imflrkhnvksvnlinesmdniqatammrkidsqagynfltgngsnpinsktvqqdikgk kianvsftdiesnytslnknttsisldpai fyplikklkenndyvvvndwgipnervt trqkayahalanagadvighntviqkvenykrtpifyslgnsttsdnflskngkmiqvq dwkgshngfhitpiqskdgkiskdnmnmkmdhirfknnkdkdsidlksgdnggytfey
566.	miehlgintpyfgilvslipfviatyfykktngfflplapl fvmvagi aflklgtisye ykgigdiinfflepaticfaiplyrkrevlkkylqifggiavgtiialliilvltf fgnqiiasmlpqaattalalpvsdgggkeltslavilnavvisalgakivklfkisnp iarglalgtsghtlgvaaakelgeteesmgsiavvvgvfvavvpilapill
567.	mkrtdkyrdsykyddqyqnhrkrseedmyrghqesqqransratqsendreyenhp yngdrdyrreqgleenekssktkkliaaiivillliavifitraiinhndkvsndpvs qnykvevengnddnrqrdsaksdknkkdtqsgidklqngidqlkqneetnadsktfkf yngqdklknannaqlnnengskvnmledintkfdskaklenilngnsng
568.	mknkqglgigitimiivcivlvimfvvggkkesyvgimkdsttdikmintknekiekv elpkdanvsvkkedfvmfkdektgkikvkvkvhddvphglmskihdmgmnmkghm
569.	mamlllvslvvyvmtltsdiledilsfklevimgfpyilssisliilfilfkdmeki ywlisivniavismghvsgqvpwsiirrtihlglitlwlglsvlylicyalkvkingl tsvrmlkvnliavimlvftgilmaidetntltlwnvawsaiylvikiaiiammllg fyqtmralrgrqqvhrfalmtelligmililqvs
570.	mksrfsfgfawmmvfvfvtmalsvilrdfgatigvkrfvfsikdlapfiaaivciv fkhkrkeglaglkfssilkvierllallilplliilmiglfsfntyadsfillqtsdlsvs ltlilighilmavvefgfrysylqniiletrmntffasivvgliysvtanttygveyagy flytfmfsmiigeliratngrtiyatafhasmtfalvlfseetgdlfsmkvialstti vgvsfiiisliirai vykttkqsldevdpnylshiqdeepsqedasstsnhdvsskdet kqgqidndkhgskkpnksddalttsnykedassvnetdttthndnikdhsytetdrhssv vndvkdellhevedhkadtaksh
571.	mennelqrglnarqmialgggtigvglmfgatstikwtgppsvilayliagifflimra mgemiynpttgsfatfasdyihpaagymtawsnvfvvvgmsevavgeymnywfp pnwlpvgvialvflmaavlsvkafgefefwafalikvvtivlmliaaglilfgignggp igisnlwshggfmpngffigffalsivigsyqgveligisagetknpqtnivkavngv rilifiygaifvsvvwnqlgsigspfvatfakvgitfaaglinfvvltaalsgcns ifasarmiyltlakkqmpkvftkvmkngvpyfvtvavsmgilallnvilpliidgads ifvyvysasilpgmipwfmilfshlrfrllhpekvhnhpfxkmpggaianyltimflilvl vgmllnketvsvvvgivfltavtlyllylryhkkerqi
572.	lqddnliipgwfkftfvqvgndliwsqyligllltagffftisskfiqlrmlpemfralte kpetlssgekispqafaisagsrvgtgnlagvataivlgpggavfwmwilafigaasa fmeatlaqvkvhdkeggfrrgpayyitkglnqkwlgivfavlitvtfafvntvqanti aeslntqynispvitgvlavitgiiifggvrsiatlssliipmaiviygmvlililn idqivpmigtliksafvgqvtvggavgaailqgikrglfseagmgsapnaaatsavp vkqglisglvffdtmvlvtatamillysglqfgdsapqgvavtgsalnehlgsgagf ltvavtlfafssvvgnyyvgqsniefllsnkmilfifrcfvlllvfvgavaktetvsta dlfmgmaivniisliglsniafavmkdyqrqrkegkrpvfkpenlelnlfgietwgqha kmpkk
573.	lkkeilewivaiavaialiaaiitkfvgksysikgdsmdptlkdgervvnniigyklggve kgnvivfhanekddayvkrvigtpgdsveykndtlyvngkkqsepylnyekrkqteyitg sfktknlpnanpqsnnvipkgkylvlgdnrevskdarsfglidkdqivgkvslywpfsef ksnfnpntkn
574.	mfnkvwfrtgifffiml filikl fmevhev fapiatiigsvflpflisgflfyiclpfqi lekvgfprwasittifigliaiaiaivsvfiapiiisninnlikgtpslqkeaeqlinfs rqmdklpddvthrinkavksmgdgatsilnsvsyitsfistvflimvpffliymklkh ekfipaigkfkfgerkvfvvdlldklnftlksyigqgvtsiilgilyiytyitiglypyt pllvlfagvanlipflgpwlsfapaailgidgpstfiwcvvtliaaqglegnvitpnvm gkslsihpltiivvilaagdlggftlilvavplyaviktlvsnifkyrqrivdkansvkd
575.	mntivkhtvgfiasivltllavfvtlytnmtfhakvtiifgfafigaaqlllmfmhltg kdgrlqsfkvifaiiitltvtvigtvymqgghsshl
576.	mlgeqytgikrpanrltekilgwfsvwflliltivsmfialvsfsndtsianlentl elvqgilannldsttqfviwlgngvwaivvfvicllisflalismnirilsllfliaa ivtvlvllivltliipilffiiammfarrdrietvpsynneydqpvydergyepesrn ehgynldvypemhttkedntrrrqfmrnaggqdsyngitdnqpdedtssdqlysdeyvdn edkysqfkraveseyasqqtetdeptvmsrqakynkkskntdfedaqghegmegnfddvg vvepqidpkelkaqrkrekaeirakkkekrkaynkrmkerrknqpsavngrrmnyeerrq minnegetdnlnnqgedsckken
577.	meenknqpnennmsnkddntihlndsqsnelelfrnkarnqrtrrrridnqskedats tqsgletkpmkfidnhkshnqdkesdlieadnvdeddnqkynndklndrsvgqgtset rqsnedeefltdhseqkqtdsrhskkhkllskfstskeketftsfnsekvtgikpls leekrairrmkqkriqytitlilililvllilymftplskisnvnkgnnnvstskikke lnvtrsrmkfkknkairnlkqnplikevdihkqlpntltvnteyqivglekmkdkyv piiedgkelteykdeshdgpiddgfkdkktrikalsemkpvznlaevsyaptknk qsrikiftdnmqvgidittiadkmqyypqmsqslsrdssgelktngyidlsvgasfipy qgsstvsqsgteqnvtkstgeendakeelqnvlnkinkqskenn

578.	mkclfkmlsiiiimlftflfispstyanedenwtiknrgelrvgladyaplefeakti hgtteyagvdielakkiakdnhlklkivnmqfslilgalktgkidiisgmtptrkpe vdfthkpymitnnmmikkddakryqnikdfegkkaaqkgtdgekiagteledskissln rlpeailsksgkvagvvekpvgaylkqnselstfskikfneekqtciavpknspvll dklntgdnvkeknldqymtkaaedmqddgnfiskysgfikgikntililsvgvvlg ilgsfiailkiskirplqwasiyieflrgtpmlvqvffvffgttaalgldisalicgti alvinssayiaeiiraginavdkgqteaarslglnyrtmqsvvmqgaikkilpalgnef vtlikessivstigvseimfnaqvvggisfdpftpllvaaallyflttfaltrvnmfiegr msasd
579.	mshkilvdsdpisedglqsilkhpefdvdiqtdlsendlvnmistydalivrsqtqvteri inaatnlkviaragvgvgninieaatlkgilvinapdgntisatehsvamllamarnipq ahqslrnkewnrkafrgvlygkltlvgigagrighgvakraqsfgmkilafdpyltedka ksldiqiatvdeiaeksdvfvthptltpktrgigvssffnkakqnlqinvarggiidet aliealdnnlidraaidvfehepptsdplighdkliivtphlgastveaqekvavsvseei ieiltkgnevahvnapkmdlskvdktqsfiglsttgefaiqlldgapseikvkyagd agndtslitrtiitnilkedlgnvevniinalailnqqgvtyniekqkhsqfssyielel vndqdkikigatvfagfpriirindysldfknqyqlvtchdkdpgivvggtgnllgshg iniasmtlgrndaggdalmilsidqgaseevikilnetsgfnkiistklti
580.	lkrnfinnliilliaimslillkmlhvilpfmfgpilaallcvkvklkirwpfwlsqig lillvgqgstftqqvikdisknwlitvfvtilillilalilafffkiaqvnlletailsv ipgalqsmvmaeenkkanilvvslqttsrvifvvlvplisyffqdnhmmhttmvpe ttsqtniwqililfsmvgliiygmskinfptkqlapiivliiwmmtthltfslldhwl ataqliymirigrlqianlmsdlkgriaiaiafqnimlvttfimiigihltnesinel lgaapggmsqivlvamatgadvamissyhifrifilfviapligrfinvklknk
581.	vktsriaiafilliallftgmmtymkvvnvnlgidlqggfevlfgvdpknkgdkidkk alqatsqtlennrvnlvgvsepkiqiedpnirrvqlagikdgaqarkllstqanltirdae dhvmsgsdikqgsakqefkqetnqptvtfkvkskdkfkvteiskkrdnvmvvlldfe kydsvkyekakqgqekpkpfisaasvdqpinsssvsiggfngkkgveeakqlaelnag slpvdldkeiysnsvgaqfggdaldktmfasivgialiyfmlgfyriplgvaiialtlyi ylitlvafnfigsvltlpglaalvlgvmavdaniimyerikdelrigrtlkqayskanks sftitfidsnlttviaavffffgessvkgfatmlllilgmilfvavflsrgllsllvssn ffkkyqylfgvkkdrhdinegkdvdhdktsyerlnfvklakplisililviigliis ifknlidifssgtradigsknaitqagvektvksvglepdqigingsgnknavtvgfkdd lsreenklsakvksefgdnpgintvslpigelaknavtalilasigiliyvsrlfrew mglssvllalldhvfiiiaifslfrlevdltfiaavltivgysindtvtfdrvenlhkv kvithtdqiddivrsirgtmtrstintvltvvvvvvaillilgaptinfslalligllsg vfssifiaavplwgmllkrgfkktknklvvhkekkndekilv
582.	mgentkqdfnqkgqnfkftkchrlllygsvflmatsaigpafitqtavftaqfyasfafa ilisiiddagaginiwrlivvtglrggeisnkvlpplgtiisiliafagglafnigniaga giglnamfgldvkgaaatalfailifvsrsgqkimdvismilgimlvvayvmvsnp pygdalvhtfapehpfklilpiitlvvggtvgvyitfagahrildsgikgksylpfnrsa vagilttgvmrtilflavlgvvvtgvtlssenppasvfqhalgpgiknifgvvifaaams svigsaytsatfiktllhkslnknliivtffvstfvlfigkpvsliliagaingwil piltgailiasrkkksivgnqghptwmlvfgiiaivtintgifsldlasilwkg
583.	vsnnnfkddfeknrqsinpdehqtelkddktnenkkeadsqnslnsnsgqfpprnaqr rkrretatnqsgkqddkqknsdakttegslddrydeagllqqhdksgqgnktekqsqd nrmdkgkdaaivngtsepehkskstqnrpgpkagqgkrksesqskpstnkdkaatga glaagavagaaetskrhnhkdkqdkshsnhendeksvknddqkqskkgkkaavagaa agvgaagvahnnqnkhneeknsnqnqyndqsegkkggfmkllilpliaaililgaia ifggmalnnhndksddqkiangskkdsdkdgaqsednkdkksdsndkksdsdkmadd dsdnsssnpnatsnnndnvnannsnaytnqnqgdnanqnsnnqatqgqqshtvygqenl yriaiqygegtqanvdikikranglssnnihnggtlvipg
584.	makgdyqgahtekyhdksksykpwwiisfiillitilllptpaglpvmakaalailaf avvmwvteavtypsatlilglmlillglspvqdlsekignpksgdililksdiltgna lghafvfgtsavalvaalflavamgetnlhkrallvlisvgnktrnivigailvsiv laffvpsataragavvpillgmiaafnvskdsrlasliitavqavsiwnigiktaaaqn ivainfinqnlghdvswgewflyaapwsiimsialyfmikfmppehdaieggkelikke lnklpglshrewrlivisvllffwstekvlhpidasatlvagilgmplkigvltwkgv ekkipvgtlivfgvvislgnvllktgaagwlsdqtfglmglkhlpiiatialitlfnili hlghfasatslasalipvfisltstlnldhaigfvlqqfvisfgfilpvsapqnmllayg tgtftvkdfiktgipltiygyilvivfsltykwlgilv
585.	mldfinhllsyqflnralitsilvgivcgtmgsiivrlgslmgdamshavlpvgalsfl fnipmfigalvtgmalslfigfitsnsktkpdaagisftaflasgviiislinsttdly hilfgnllaihthqsfwtitvltvlliliiifyrplmistfdatfsmrglnttlihyfv mllalvtvasiqtvgiilvalliitpastafliksqlyamvviassivissiglyfs yynipsgativictfmiyivtltisitrikngkrsalt
586.	lakllyklgkfiaknkwlsvigwlvilgviitplminspkfdsditmglskldtndkis kefhqdssekasmkivfhsnkndglnnkdtkkdielaldnirgnddyiqnisnpydsgqvn degdtaianvsyvpvtqglkdsskhiidkelkdvtndhvnqiektqggamsepggtsei vgliivavillitfgsliaagmpiiisaiglgssvgiialltyifdipnftltlavmig avgidydsilfilfrkelkkkgvdtveaiatavgtagsavifagltvniavcglslvgidf lavmgfasaisvlfavlaaltlilpalisifhksikikdkptkskdpkshwakfivgkpv iavivliililaipvgmrlgipddslkptdsseykaykliednfgegyngqivmlvn tkdggskstierldnnmrsdledidnvdvtvskaqltdnnnyalfiipekgnpsqstenl vyldirvysaqakeydygteisgqsvinidmseklnnaipvfvagviviavflilmiivrs ilvplkavlgfilsimatlgfttlvighgfmgsifgientgpllaflpvtigtillglai dyelflmtrvheysktgdnahsirvgikesgppvivaalimfsvfiavfvgdsaiskm gialgfvlfdafvrrmtlipaltklfgkaswylpkwlgavlpnvdvvegkaleednhhd ssekghvndknseysrqdknyvyqndkrynrynnyndedynrsvhlnnhhdqhrhghyd nqrddidydeslytqgdhthhdernyndrhyqndymddyrhnnhdhqdndhdyhdsnf dktnlykeltdsnidqdvlfkalmlyarenngvdydrynrssqhrhdelrd
587.	mkkkvehignqytsqenkkkqrqkmkuvrrrialfggillailililvlviqrhnd qdaverkeketefqkqdeialkeklennldkdyekiarddyylsnkgevirflpdk kssqsktsnekgm
588.	mkirltifiailstiglvlvlakypgtgphntinynepytvliatitivimalpaililgif nhlacriisailqisalmwgfvlviislimgqvimmasltiallvssivtltsvhpst sdkin



589.	mnklllwsiiigiviivvliiaafilekqvngsgskdsnaydtytvrketpislegkaspes vktynnnsgvgnflsvsvqdggtvkqgeriinydntngnkrqqllnkvngagsqvnddyqk vnqspnnhqlqvkltdqgsalneaqqslsqydrqlndsmnasfdgkinikndsdvgegqp iiqlissnpqinatitefdinkikegdevnvtvntsgkkgkqkilkidelptsydsdds tassagagagdseegtemtsnptingpttgksgetsykviiigldipvrsgfmsdak iplkttkkilpnvltkdnvfvvdknkvvhkreikiermgeiivkkgksgdkvlkspkg nldgkvevss
590.	maettkifeshlvkqalkdsvlklypvymiknpimfvvevgmlalglitiypdlfhqesv srlyvfsifiillltlvfanfsealaegrqkaganalrqtqtemkarrikqdgsgyemida sdlkkghivrvatgeqipndgkvikglatvdesaitgesapvikesggdfnvggtsva sdwleiveitsepghsfldkmiglvegatrkktpneialftllmtltiiflvviltmypla kflnfnlsiamlialavclipttigllsaiglagmdrvtqfnilaksgrsvetcgdvuv lildktgtitygnrmadafipvksssfervlkaayessiaddtpegrsivklaykqhidl pqevgeyipftaetrmsgvkfttrevykgapnsmvkrvkeagghipvldalvkgvskkg gtplvledneilgvilykdvdikdglverfrelremgietvmctgdndeltaiakeagv drfvaekpedkinvireeqaghivamtgdgtndapalaeavnglamnsgtmsakeaan liddsnptklmevvlvgkqllmtrgslttfsiandiakyfailpamfmaampamhlni mhlhspesavlsalifnalilvllipiamkgvkfgastqtilmkmmlvyglgmivpfi giklidlilqlfv
591.	mivlrrlfgdrgaifaiaitiyvvlgvlaplitfyepnhidtankfagiswshwlgtdh lgrdvltriyairpsllyvfvaiisvvgailgfigsyfpgyidaimricdvmlafp syvvtlalatitfgmgveniiaafiltrwawfcrvirtsvmqyleadhvkfakvigmdlt iirkhilpttftdiaiassmcsmlqmsgfsflglvgkaptawgmmlnearkvmtfth pgmmmttgvaiivmafnfldalqmaidprmsakekrlalkkgvkdarda
592.	mgkamswpflrlyiltlmmfsanailnvfiplrhgdlatntvigivmgaymltamcrp wagqiarigppikvlrliillnamalvlygftglegylarimggvctaffsmqlglgi dalpekyrsegvlyelfstipnllgpliavgiwhvenmsifaivmfiavttitfgyrt tfantqevspkdevlpfnamtvyvqffknkalfcsgmimillessivfgamstfiplytvr egfanagifltigaitvviarfylrkyvpsdglwhhrfmmivltllmvasvivafigphiv sifvvisaifigitqalvyptlttysfvlpkigrnmllglfiacadlgislggvlmgpi sdtvgfkwmyilcallvtiamtiskirqrqsvskas
593.	vgstvykrkfilpivvgliiwaltpikpdalndqawfmfaifvstiaacitqpmtigavs iigftimilvgivdtktavqgfgnssiwliamaaffisrgfvktglgrrialqfvklfgkk tlglayslvvgvdlilapatpsntaraggimfpikielsesfgspsrdgserkmgaflit efqgnlitsamfltamagnpiagslaektahvqitwmnwfvaaipglisilivvpfiyk lypptvketpnakkwateqleemghmslaeklmvgifilalalwvlgfnnvdattafi alalilltgvlawsdilnetgawntlvwfsvlvmaeqnklgfigipwlskliagglngfs wpivlillilfyfysylfasatahvsamyaallgvavasgapplfsalmgffgnllas tthysgspapilyaagyvtqkrwmtmivlgivyfliiwigvgslwmkligm
594.	mkdnkmlfiifmigtftvgmaeyvvtglltqiaddmkvsiissagllisvyaivaligpl nriitlkvhahrlpilvalfiisnlvgmlapnfnvllsrlmsaamhapffgvcmsvaa tvappakktqaiialvgagltiavmlgvpgfsgflggfanwrvvfgfmivlailitlmglkf vppnlsaeaaniskeltvfknpililviaiivfgygsvfttytfmepmirdfepfkivgl tvclfmfglggvignlitgnvpedkltknlyltflllftvtilfvtvignsilaliicfl fgfgtfgtptlilnskilsgkeapllastlaasifnvanflgaisillsigipyiqit lisggiivlgmlnlvnlqlyekkhittfneys
595.	MAVKVAINGFRIGRLAFRRIOEVEGLEVVAVNDLTDDMLAHLKYDTMQGRFTGEVEV VDGGRFVNGKEVKSFESEPDASKLPWKDLNIDVLECTGYFTDKDKAQAHIEAGAKKVLIS APATGDLKTIVFNINHQELDGSETTVVSGASCTTNSLAPVAKVLNDDFGLVEGLMTTHAY TGDQNTQDAPHRKGDKRRARAAENIIPNSTGAAGAIGKVIPEIDGKLDGGAQRVPVATG SLTELTVVLEKQDVTVEQVNEAMKNASNESFGYTEDEIVSSDVVGMTYGSFLDATQTRVM SVGDRQLVKVAAWYDNEMSYTAQLVRTLAYLAELSK
596.	vkrlknfilgllilvalvgfllfmyiddsriqsyqdyflqfnwfgp11liglaglililgli lvlsifkpthrkpglyknddghiyvsvrkavektiydtiakdyqvrqpnvsvsklynkknk sfidikadffvpnhvqvkslitesiradiksnvehfteipvrklevnvrdqktsgprvl
597.	msflrkhteifisyiigivslftgllifinplikqfgdkkvdthvnmweflnaffae iikvmskfiggfpitsaiviivfgilvmlghtlfrtikydydisifflvigimyiitl llmtqvyygfaiivfiipftvhigyivykdelngdnrknhywmliivtygmsylitqislyg ridaneiesidilsvntffliimwllgqmaiwnflfrrslptkeelgeeeepelsrtakg nvsnqtkvhlkqlqnktteyarktrrsvldkirkakrdkfkqkinsivdiqeddipnwmk kpkwvkmymvqlfcgvililffaflefnrmalfltgewelsqtqyvvevwtlllllfiil iyiatlttylrdkyylqlfmgssilffkfltefinimvghllsifitp11llmliami vayslqlrek
598.	mqgettswykqewfivlsllfifplglflmwkfskwparsiartiitvaisvivasityy nlqmivpatsnsnnketkennvndkdernhktaveetktnydstkentkepgkenesa trlensalekaksyyddfhmsklgiydiltseygekfdkedaqaidhleadyeknalek aksyakdmhmsndsdiydlvsnygekfteseakyaiehlnd

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
1 August 2002 (01.08.2002)

PCT

(10) International Publication Number  
**WO 02/059148 A3**

- (51) International Patent Classification<sup>7</sup>: **C07K 14/31**, 14/195, A61K 39/00, C12N 15/10, C07K 16/12
- (74) Agents: SONN, Helmut et al.; Riemergasse 14, A-1010 Wien (AT).
- (21) International Application Number: PCT/EP02/00546
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 21 January 2002 (21.01.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
A 130/01 26 January 2001 (26.01.2001) AT
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): INTERCELL AG [AT/AT]; Campus Vienna Biocenter 6, A-1030 Vienna (AT).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): MEINKE, Andreas [DE/AT]; Piettegassee 26/1, A-3013 Pressbaum (AT). NAGY, Eszter [HU/AT]; Taborstrasse 9/15, A-1020 Vienna (AT). VON AHSEN, Uwe [DE/AT]; Schmalzhofgasse 22/25 A-1060 Vienna (AT). KLADE, Christoph [AT/AT]; Gröhrmühlgasse 1B, A-2700 Wr. Neustadt (AT). HENICS, Tamas [HU/AT]; Taborstrasse 9/15, A-1020 Vienna (AT). ZAUNER, Wolfgang [AT/AT]; Parkgasse 13/22, A-1030 Vienna (AT). MINH, Duc, Bui [VN/AT]; Rudolf Zeller Gasse 70/6/9, A-1230 Vienna (AT). VYTVYTSKA, Oresta [UA/AT]; Leystrasse 110/1/2, A-1200 Vienna (AT). ETZ, Hildegard [AT/AT]; Lortzinggasse 1/21, A-1140 Vienna (AT). DRYLA, Agnieszka [PL/AT]; Pragerstrasse 43-47/2/15, A-1210 Vienna (AT). WEICHHART, Thomas [AT/AT]; Hinterholz 10, A-3071 Böheimkirchen (AT). HAFNER, Martin [AT/AT]; Arnoldgasse 2/7/4/27, A-1210 Vienna (AT). TEMPELMAIER, Brigitte [AT/AT]; Messenhausergasse 10/20, A-1030 Vienna (AT). FRASER, Claire, M. [US/US]; 11915 Glen Mill Road, Potomac, MD 20854 (US). GILL, Steven [US/US]; 2248 Wetherbourne Way, Frederick, MD 21702 (US).
- Declaration under Rule 4.17:**  
— *of inventorship (Rule 4.17(iv)) for US only*
- Published:**  
— *with international search report*  
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
- (88) Date of publication of the international search report:  
31 July 2003
- (15) Information about Corrections:  
**Previous Corrections:**  
see PCT Gazette No. 03/2003 of 16 January 2003, Section II  
see PCT Gazette No. 44/2002 of 31 October 2002, Section II
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: A METHOD FOR IDENTIFICATION, ISOLATION AND PRODUCTION OF ANTIGENS TO A SPECIFIC PATHOGEN

(57) Abstract: Described is a method for identification, isolation and production of hyperimmune serum-reactive antigens from a specific pathogen, a tumor, an allergen or a tissue or host prone to autoimmunity, said antigens being suited for use in a vaccine for a given type of animal or for humans.



WO 02/059148 A3

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/00546

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/31 C07K14/195 A61K39/00 C12N15/10 C07K16/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, PAJ, SEQUENCE SEARCH

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 02 094868 A (CHIRON SPA (IT)) 28 November 2002 (2002-11-28) the whole document, especially seq.id. 921 and 1169	21-34
P,X	--- WO 01 98499 A (UNIV SHEFFIELD; BIOSYNEXUS) 27 December 2001 (2001-12-27)  page 6, line 1 -page 17, line 5 table 1  --- -/--	1,2,5-7, 9-16, 21-33



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "a" document member of the same patent family

Date of the actual completion of the international search

28 April 2003

Date of mailing of the international search report

19. 06. 2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

De Kok, A

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/00546

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>DATABASE SWALL [Online]  1 June 2001 (2001-06-01)  KURODA, M.ET AL.: "Staphylococcus aureus  hypothetical protein SAV1129"  retrieved from EBI, accession no. Q99UX5  Database accession no. Q99UX5  XP002239366  abstract</p> <p>---</p>	21,22,24
P,X	<p>DATABASE SWALL [Online]  1 December 2001 (2001-12-01)  KURODA, M. ET AL.: "Staphylococcus aureus  hypothetical protein SAV1731"  retrieved from EBI, accession no. Q931P4  Database accession no. Q931P4  XP002239367  abstract</p> <p>---</p>	21,22,24
P,X	<p>DATABASE SWALL [Online]  1 June 2001 (2001-06-01)  KURODA, M. ET AL.: "Staphylococcus aureus  hypothetical protein SA1522"  retrieved from EBI, accession no. Q99TD3  Database accession no. Q99TD3  XP002239368  abstract</p> <p>---</p>	21,22,24
P,X	<p>WO 01 70955 A (ELITRA PHARMACEUTICALS  INC.) 27 September 2001 (2001-09-27)  abstract  -&amp; DATABASE GSP [Online]  EMBL; 14 February 2002 (2002-02-14)  ELITRA PHARM.:  retrieved from EBI, accession no. AAU34361  Database accession no. AAU34361  XP002239369  abstract  -&amp; DATABASE GSP [Online]  EMBL; 14 February 2002 (2002-02-14)  ELITRA PHARM.:  retrieved from EBI, accession no. AAU37044  Database accession no. AAU37044  XP002239370  abstract</p> <p>---</p>	21,22, 24,28
X	<p>EP 0 786 519 A (HUMAN GENOME SCIENCES INC)  30 July 1997 (1997-07-30)  page 1670  page 1791  page 2111  page 3234 -page 3237; claims 1-29</p> <p>---</p> <p>-/--</p>	21-34

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/00546

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SILOUD M ET AL: "PROFILING THE IMMUNE RESPONSES IN PATIENT SERA WITH PEPTIDE AND CDNA DISPLAY LIBRARIES (REVIEW)" INTERNATIONAL JOURNAL OF MOLECULAR MEDICINE, SPANDIDOS, ATHENS, GR, vol. 6, no. 2, 2000, pages 123-128, XP001062909 ISSN: 1107-3756 page 124; figure 1 page 126 -page 127</p> <p>---</p>	1,3,5, 11,12
X	<p>WO 00 68373 A (TVW TELETHON INST CHILD HEALTH) 16 November 2000 (2000-11-16) page 13, line 5 -page 15, line 27 page 26, line 24 -page 27, line 17; example 3</p> <p>---</p>	1,3,5,6
X	<p>WO 99 67376 A (INST NAT SANTE RECH MED (FR); INSTITUT PASTEUR (FR)) 29 December 1999 (1999-12-29) page 10, line 18 -page 12, line 12</p> <p>---</p>	1,3,5-7, 9-15
X	<p>LIN-FA W ET AL: "Use of a gene-targeted phage display random epitope library to map an antigenic determinant on the bluetongue virus outer capsid protein VP5" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER SCIENCE PUBLISHERS B.V.,AMSTERDAM, NL, vol. 178, no. 1, 13 January 1995 (1995-01-13), pages 1-12, XP004021120 ISSN: 0022-1759 page 2, column 2, paragraph 2 -page 5, column 2</p> <p>---</p>	1,3
X	<p>WO 00 45839 A (CISTEM BIOTECHNOLOGIES GMBH) 10 August 2000 (2000-08-10)  page 3, paragraph 2 -page 6, paragraph 2 page 8, last paragraph -page 12, paragraph 3</p> <p>---</p>	1,3,5-7, 9,10, 12-16,20
A	<p>ORTEGA-MORA L M ET AL: "IDENTIFICATION OF CRYPTOSPORIDIUM PARVUM OOCYCT/SPOROZOITE ANTIGENS RECOGNIZED BY INFECTED AND HYPERIMMUNE LAMBS" VETERINARY PARASITOLOGY, ELSEVIER SCIENCE, AMSTERDAM, NL, vol. 53, no. 1/2, May 1994 (1994-05), pages 159-166, XP000942738 ISSN: 0304-4017 the whole document</p> <p>---</p>	1,9,10, 16-19

-/--

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/00546

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00 56357 A (NABI) 28 September 2000 (2000-09-28) page 1, line 30 -page 3, line 11 page 4, line 1 -page 7, line 28 page 9, line 27 -page 17, line 25; examples 1-12 ---	1,20
A	CASOLINI FABRIZIA ET AL: "Antibody response to fibronectin-binding adhesin FnbpA in patients with Staphylococcus aureus infections." INFECTION AND IMMUNITY, vol. 66, no. 11, November 1998 (1998-11), pages 5433-5442, XP002222372 ISSN: 0019-9567 the whole document ---	1
T	ETZ HILDEGARD ET AL: "Identification of in vivo expressed vaccine candidate antigens from Staphylococcus aureus." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES, vol. 99, no. 10, 14 May 2002 (2002-05-14), pages 6573-6578, XP002222373 <a href="http://www.pnas.org">http://www.pnas.org</a> May 14, 2002 ISSN: 0027-8424 the whole document -----	1-20

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP 02/00546

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

As a result of the prior review under R. 40.2(e) PCT,  
no additional fees are to be refunded.

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:  
1-20 completely and 21-34 partially (seq.id 3/56 and seq.id 413/414)
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☒ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1: claims 1-20

A method for identification, isolation and production of hyperimmune serum-reactive antigens from a pathogen, a tumor, an allergen or a tissue or host prone to auto-immunity, said antigens being suitable for use in a vaccine.

Invention 2: claims 21-34, all partially

A hyperimmune serum reactive antigen from *S. aureus* consisting of the sequence listed in SEQ.ID.No.1 of the sequence listing; the pharmaceutical use of said antigen; fragments of said antigen; helper epitopes from said antigen; vaccines comprising said antigen; antibodies against said antigen; methods for the preparation of said antibodies as well as a screening method involving said antigen.

Inventions 3-599: claims 21-34, all partially

As invention 2, but limited to each single nucleic acid having a SEQ.ID. in the order as listed in the sequence listing, i.e. starting with SEQ.ID.No.2 and ending with SEQ.ID.No.598.



## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 02/00546

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 02094868	A	28-11-2002	WO 02094868 A2	28-11-2002
WO 0198499	A	27-12-2001	AU 7424801 A	02-01-2002
			EP 1292681 A1	19-03-2003
			WO 0198499 A1	27-12-2001
			NO 20025838 A	18-02-2003
WO 0170955	A	27-09-2001	AU 4934501 A	03-10-2001
			EP 1268774 A2	02-01-2003
			WO 0170955 A2	27-09-2001
			US 2002061569 A1	23-05-2002
EP 0786519	A	30-07-1997	CA 2194411 A1	06-07-1997
			EP 0786519 A2	30-07-1997
			JP 9322781 A	16-12-1997
			US 2003054436 A1	20-03-2003
			US 2002103338 A1	01-08-2002
WO 0068373	A	16-11-2000	WO 0068373 A1	16-11-2000
			AU 4275900 A	21-11-2000
			CA 2372464 A1	16-11-2000
			EP 1179059 A1	13-02-2002
WO 9967376	A	29-12-1999	CA 2331786 A1	29-12-1999
			EP 1090111 A1	11-04-2001
			WO 9967376 A1	29-12-1999
			US 2002102534 A1	01-08-2002
WO 0045839	A	10-08-2000	AT 407643 B	25-05-2001
			AT 12999 A	15-09-2000
			AU 3277400 A	25-08-2000
			WO 0045839 A2	10-08-2000
			EP 1144002 A2	17-10-2001
WO 0056357	A	28-09-2000	AU 3751300 A	09-10-2000
			BR 0009157 A	16-04-2002
			CA 2366433 A1	28-09-2000
			EP 1162997 A2	19-12-2001
			JP 2002539272 T	19-11-2002
			WO 0056357 A2	28-09-2000